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THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

TIC DE GILLES DE LA TOURETTE
SMOKING HABIT
STATIC BRAIN SCAN

AMA CONVENTION

OLUME 70 JANUARY, 1974 NUMBER 1

Announcing . . .
U-100 Iletin® (Insulin, Lilly)
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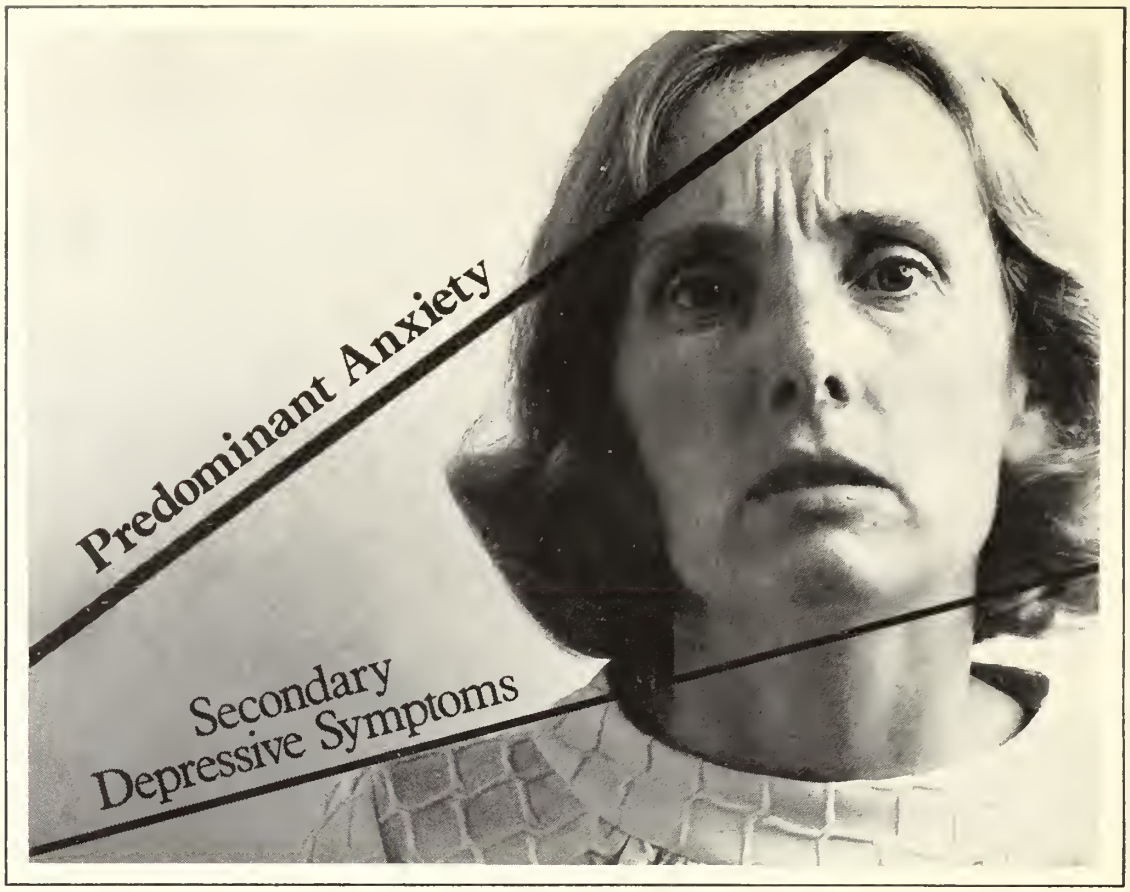


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This psychoneurotic often responds

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Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

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When you determine that the depressive symptoms are associated with or secondary to predominant anxiety in the psychoneurotic patient, consider Valium (diazepam) in addition to reassurance and counseling, for the psychotherapeutic support it provides. As anxiety is relieved, the depressive symptoms referable to it are also often relieved or reduced.

The beneficial effect of Valium is usually pronounced and rapid. Improvement generally becomes evident within a few days, although some patients may require a longer period. Moreover, Valium (diazepam) is generally well tolerated. Side effects most commonly reported are drowsiness, ataxia and fatigue. Caution your patients against engaging in hazardous occupations or driving.

Frequently, the patient's symptoms are greatly intensified at bedtime. In such situations, Valium offers an additional advantage: adding an *h.s.* dose to the *b.i.d.* or *t.i.d.* schedule can relieve the anxiety and thus may encourage a more restful night's sleep.

symptom complex to Valium® (diazepam)

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

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Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N J 07110

Valium® 2-mg, 5-mg, 10-mg tablets
(diazepam)

Blue Cross®
Blue Shield®
of South Carolina



PROPOSED STANDARD CLAIM FORM AND CODING SYSTEM

As you are well aware, there is a Blue Shield claim form. There is a Medicare Part B claim form. There is a Medicaid claim form. Each differs from the others.

There is a coding system used for Blue Shield claims. There is another coding system used for Medicare Part B and Medicaid claims.

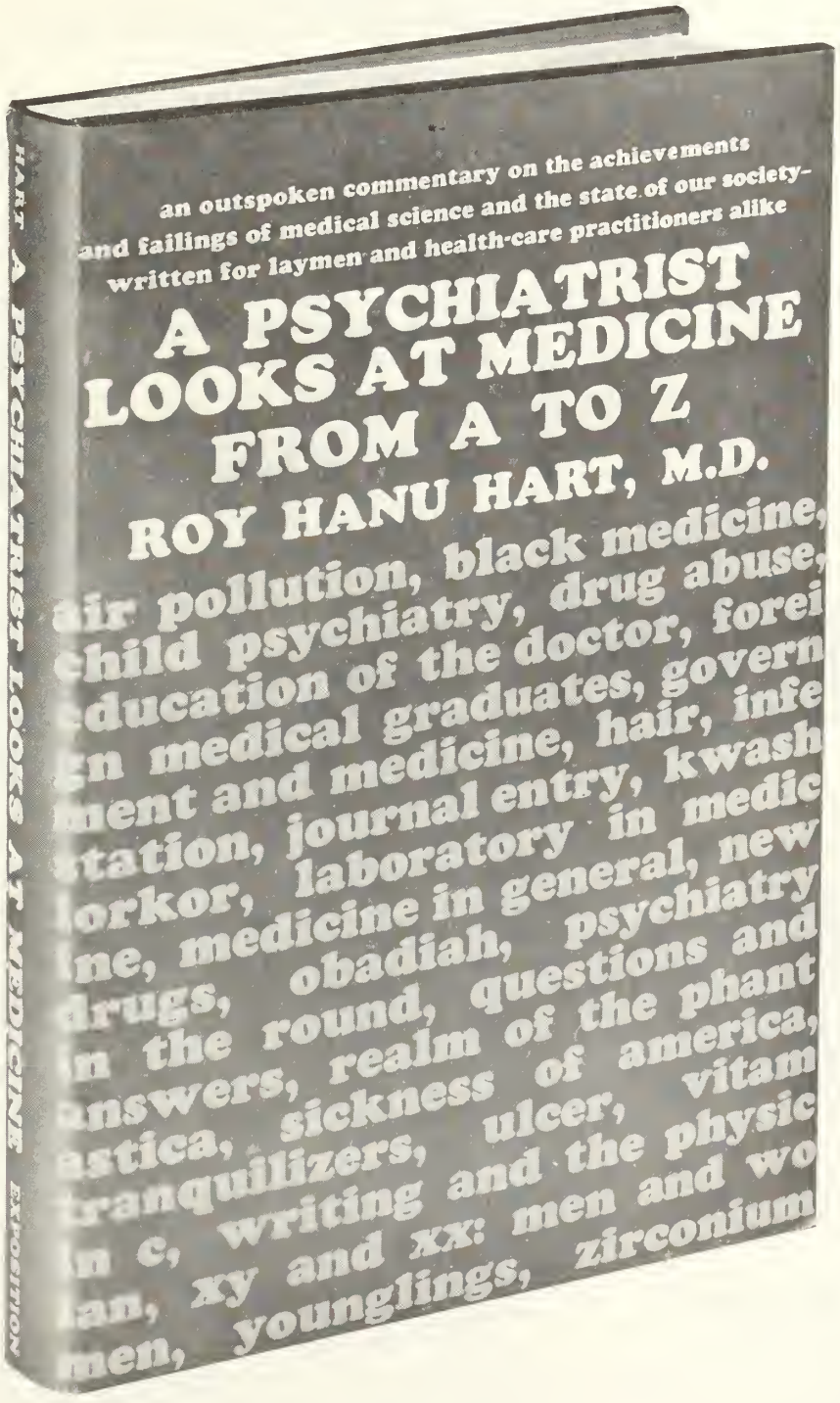
You don't like having to use three different claim forms. Neither do we. You don't like having two separate coding systems. Neither do we. We <u>are</u> trying to do something about this!

We have proposed, and are shooting for a July 1, 1974 date for introduction of a standard claim form on which all claims can be filed. This proposed form is the AMA version of a standard claim form; namely, the Health Insurance Claim Form.

We have proposed one set of codes for all three programs, based on a national coding system already in use in some parts of our country.

We will help you and our company at the same time if and when we can implement these proposed changes. We'll keep you posted.

MUCH OF IT WAS WRITTEN BY THE AUTHOR WHEN HE WAS WITH THE MEDICAL UNIVERSITY OF SOUTH CAROLINA.



$6.50 at bookstores

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Jericho, N.Y. 11753

THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

JANUARY, 1974 — VOL. 70, NO. 1

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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association Business office: 1508 Washington Street, Columbia, South Carolina 29201.

Subscription price $6.00 in the U S ($7.00 per year, Foreign) Second Class Postage paid at Columbia, S C and at additional mailing offices

The views expressed in this publication are those of the writers and do not necessarily reflect the opinions of the South Carolina Medical Association.

Contributions of Original Articles

Length—Short articles of about 2,500 words (about 8 typewritten pages, double spaced) are preferred Longer articles will defer to the shorter ones in schedule of publication

Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted

Illustrations—Ordinarily publication of 4 small illustrations or the equivalent accompanying an article will be paid for by The Journal Any number beyond this must be paid for by the author except under unusual conditions Illustrators should be sent as glossy prints or graphs in black ink with lettering large enough to show after reduction

References—Should conform to the following order surname and initials of author, title of article in small letters, name of periodical, with volume, page, month, day of month if weekly, and year—e g Lee, G S The heart rhythm following therapy with digitalis Arch Int Med 44 554, Dec 1942 They should be listed numerically in order of appearance in the text Standard abbreviation for journals should be used Note that periods are not used with these abbreviations as indicated by the Index Medicus Other abbreviations should be standard—e g mg, ml, Gm

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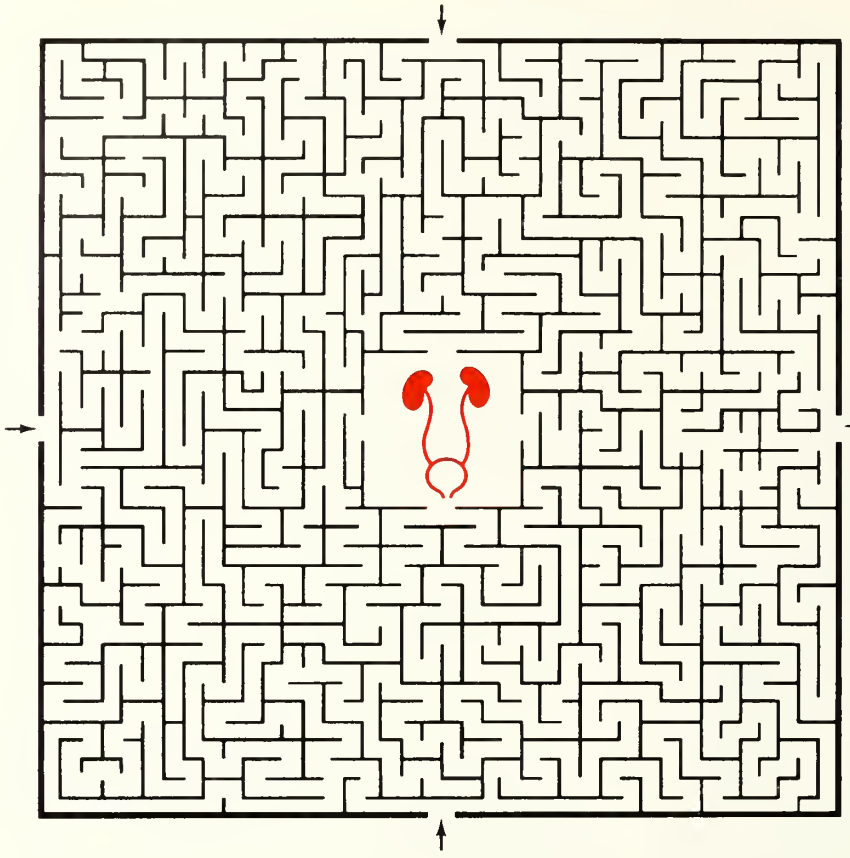
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McNEIL McNeil Laboratories, Inc., Fort Washington, Pa. 19034

Basics in the treatment of urinary tract infection

Short-term therapy is no shortcut



Enter any opening and find way to center of maze. Only one entrance will get you there.

The case for adequate length of therapy

In the insidious, common and often stubborn urinary tract infections, duration of therapy is not standardized. Because renal damage in many patients is believed to result from repeated urinary tract infections in childhood, one pediatrician has stated that a rational approach to treatment includes more than a perfunctory prescription of an antibacterial agent.[1]

The first 48 hours and after...

To ensure adequate therapy, one expert[2] proceeds as follows: an initial culture and one after 48 hours. If the antibacterial used has been effective, the urine will be clear of pathogens after 24 to 48 hours. However, urine should be recultured and any persistence of original pathogens indicates that another drug be used. On the other hand, if urine is found to be sterile, the same drug is continued for two weeks. Then urine is recultured starting a week after the last drug dose, and cultures are continued monthly for three months, then every three months for a year, and finally, every four months for several years.[2]

Another authority[3] notes that initial short-term therapy without careful follow-up can lead to trouble, as reflected by the high relapse rate. He treats an initial urinary tract infection with a sulfa drug after taking a urine culture. If *Escherichia coli* is found—and it is in 70 to 80 per cent of cases—he continues full dosage for 21 days. Five to 10 days after cessation of therapy, he recultures and takes a colony count. If urine is sterile, he recultures at three and six months.

Measurement of success

For success in the treatment of urinary tract infection, the urine must be kept free of bacteria for prolonged periods until the focus of infection in the tissue has been eradicated.[3] This may take months or years when the infection is chronic or persistent. Criteria for successful therapy with a drug are regarded as absence of symptoms and absence of pyuria and bacteriuria.[3] One authority defines significant bacteriuria as a count of at least 100,000/ml of the same organism in two consecutive clean-voided urine samples.[4]

The nature of the infection and the length of therapy

Long-term follow-up is essential, a clinician who treats recurrent infections for one to two years points out.[3] Persistent, symptomless bacteriuria usually calls for urologic procedures to find the site of infection, because any underlying abnormality predisposing to urinary tract infection must be detected and corrected—otherwise therapy is futile.[5] Upper urinary tract infection generally requires longer therapy than infection of the lower urinary tract.

In acute, simple, first infections of a symptomatic type, the pathogens are nearly always *E. coli* or *Proteus mirabilis*.[5]

References: 1. Normand, I. C. S.: *Practitioner, 204*:91, 1970. **2.** Kass, E. H.: *Hosp. Med., 4*:73, 1968. **3.** Lampe, W. T. II: *J. Am. Geriatr. Soc., 16*:798, 1968. **4.** Petersdorf, R. G., and Turck, M.: *GP, 32*:(2) 130, 1965. **5.** Benner, E. J.: *Med. Times,* 98:(2) 95, 1970.



The case for Gantanol® (sulfamethoxazole)

Fights susceptible organisms most often implicated

Gantanol® (sulfamethoxazole) is effective against not only susceptible strains of *E. coli* and *Proteus mirabilis* but also of *Klebsiella-Aerobacter, Staphylococcus aureus* and, less frequently, *Proteus vulgaris*—pathogens apt to be found in the mixed bacterial flora of recurrent and chronic cystitis and/or pyelonephritis.

Prompt antibacterial blood/urine levels

After the initial 2-Gm adult dose, therapeutic blood/urine levels are usually reached in from 2 to 3 hours, then maintained with either of the two dosage forms of Gantanol—tablets or suspension. And, Gantanol *b.i.d.* dosage means up to 12 hours of antibacterial activity, obviating the patient's having to disturb his sleep to take medication. More severe infections may require *t.i.d.* dosage.

Also effective in certain nonobstructed chronic and recurrent urinary tract infections

Nonobstructed chronic and recurrent cystitis or pyelonephritis develops more commonly in the elderly and debilitated, and response to Gantanol (sulfamethoxazole) is often highly satisfactory. The usual precautions in sulfonamide therapy should be observed, including maintenance of adequate fluid intake, frequent c.b.c.'s and urinalyses with microscopic examination.

Make the therapy suit the infection

In most urinary tract infections the *b.i.d.* schedule will usually suffice, but therapy must be maintained long enough to ensure eradication of pathogens. Mounting evidence in current medical literature suggests a minimum of 14 days of continuous therapy.* Adequate treatment for a sufficient time may also help prevent possible kidney damage. Gantanol is generally well tolerated with relative freedom from complications. The most common side effects include nausea, vomiting and diarrhea. Prescribe Gantanol tablets or the pleasant-tasting suspension.

*Data on file, Hoffmann-La Roche Inc., Nutley, N.J.

In nonobstructed cystitis due to susceptible organisms

Gantanol® B.I.D. (sulfamethoxazole) Basic Therapy

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc
Nutley, N.J. 07110

Please see following page for summary of product information.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Acute, recurrent or chronic nonobstructed urinary tract infections (primarily pyelonephritis, pyelitis and cystitis) due to susceptible organisms. *Note:* **Carefully coordinate *in vitro* sulfonamide sensitivity tests with bacteriologic and clinical response; add aminobenzoic acid to follow-up culture media. The increasing frequency of resistant organisms limits the usefulness of antibacterials including sulfonamides, especially in chronic or recurrent urinary tract infections.** Measure sulfonamide blood levels as variations may occur; 20 mg/100 ml should be maximum total level.

Contraindications: Sulfonamide hypersensitivity; pregnancy at term and during nursing period; infants less than two months of age.

Warnings: Safety during pregnancy has not been established. Sulfonamides should not be used for group A beta-hemolytic streptococcal infections and will not eradicate or prevent sequelae (rheumatic fever, glomerulonephritis) of such infections. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been reported and early clinical signs (sore throat, fever, pallor, purpura or jaundice) may indicate serious blood disorders. Frequent CBC and urinalysis with microscopic examination are recommended during sulfonamide therapy. Insufficient data on children under six with chronic renal disease.

Precautions: Use cautiously in patients with impaired renal or hepatic function, severe allergy, bronchial asthma; in glucose-6-phosphate dehydrogenase-deficient individuals in whom dose-related hemolysis may occur. Maintain adequate fluid intake to prevent crystalluria and stone formation.

Adverse Reactions: *Blood dyscrasias* (agranulocytosis, aplastic anemia, thrombocytopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia); *allergic reactions* (erythema multiforme, skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis); *gastrointestinal reactions* (nausea, emesis, abdominal pains, hepatitis, diarrhea, anorexia, pancreatitis and stomatitis); *CNS reactions* (headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo and insomnia); *miscellaneous reactions* (drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon). Due to certain chemical similarities with some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia as well as thyroid malignancies in rats following long-term administration. Cross-sensitivity with these agents may exist.

Dosage: Systemic sulfonamides are contraindicated in infants under 2 months of age (except adjunctively with pyrimethamine in congenital toxoplasmosis).

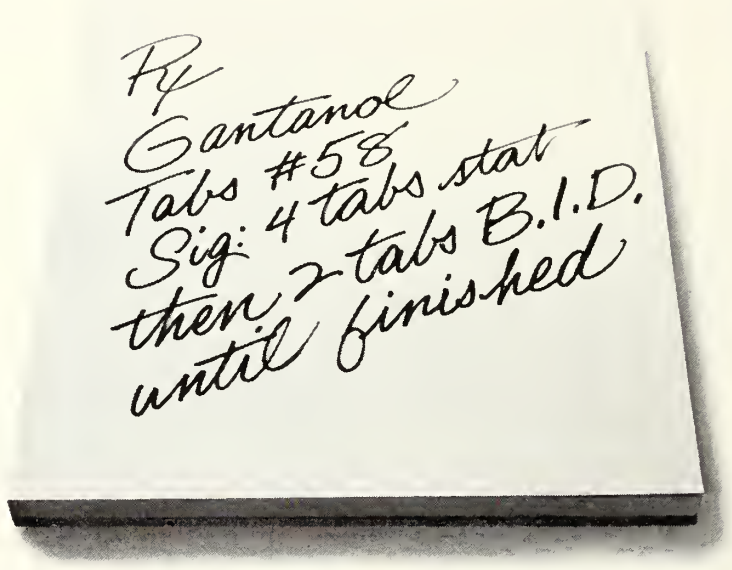
Usual adult dosage: 2 Gm (4 tabs or teasp.) initially, then 1 Gm *b.i.d.* or *t.i.d.* depending on severity of infection.

Usual child's dosage: 0.5 Gm (1 tab or teasp.)/20 lbs of body weight initially, then 0.25 Gm/20 lbs *b.i.d.* Maximum dose should not exceed 75 mg/kg/24 hrs.

Supplied: Tablets, 0.5 Gm sulfamethoxazole; Suspension, 0.5 Gm sulfamethoxazole/teaspoonful.

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In nonobstructed cystitis due to susceptible organisms

Gantanol® (sulfamethoxazole) B.I.D.

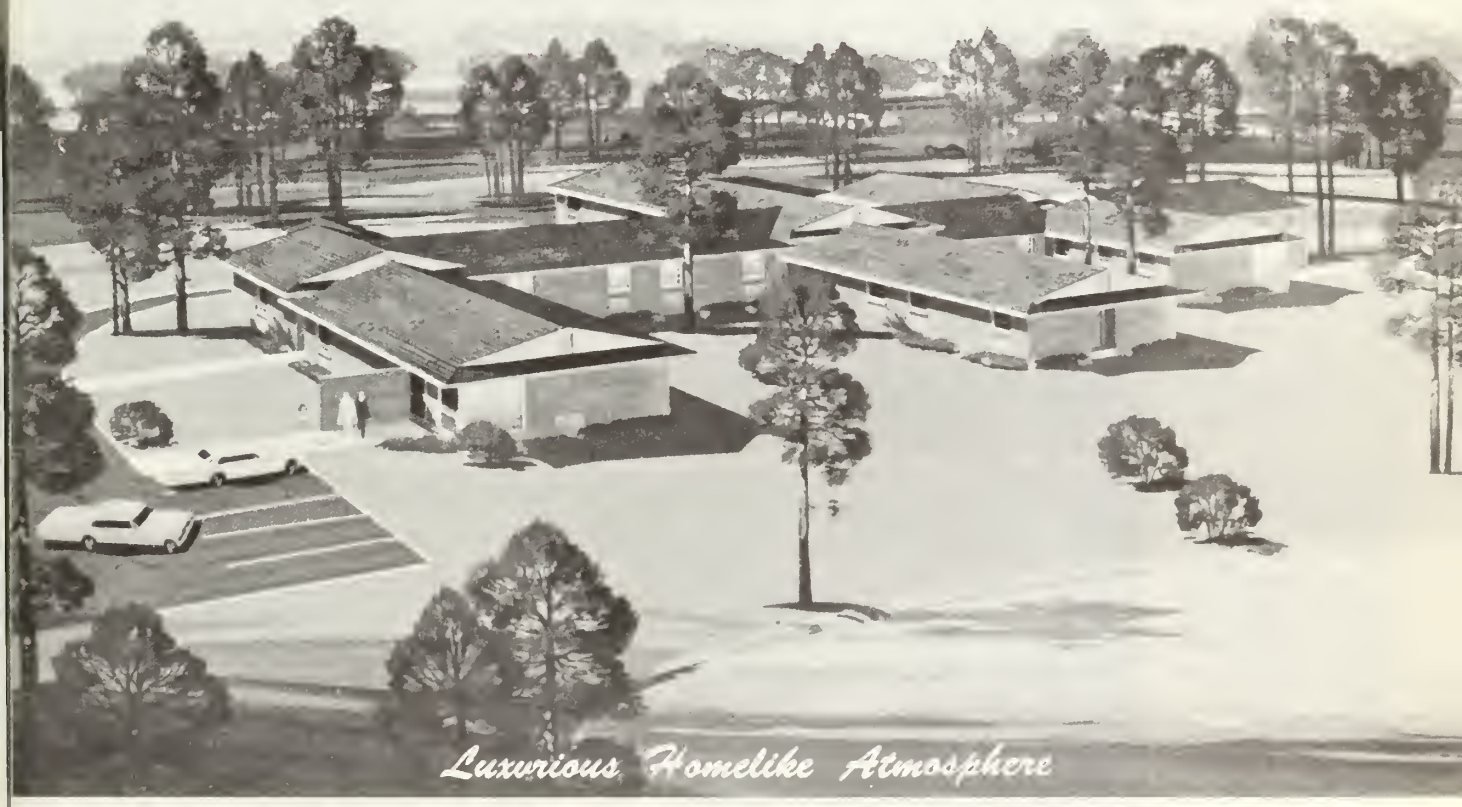
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What's on your patient's face...

may be more important than his chief complaint

Patient P.T.* seen on 3/29/67 shows typical lesions of moderately severe keratoses. Note residual scarring on ridge of nose from previous cryosurgical and electrosurgical procedures.



Patient P.T.* seen on 6/12/67, seven weeks after discontinuation of 5% FU cream. Reaction has subsided. Residual scarring not seen except that due to prior surgery. Inflammation has cleared and face is clear of keratotic lesions.

*Data on file, Hoffmann-La Roehe Inc., Nutley, N.J



The lesions on his face are solar/actinic— so-called "senile" keratoses... and they may be premalignant.

Solar, actinic or senile keratoses

These lesions may be called by several names, but they usually can be identified by the following characteristics. The typical lesion is flat or slightly elevated, of a brownish or reddish color, papular, dry, rough, adherent and sharply defined. They commonly occur as multiple lesions, chiefly on the exposed portions of the skin.

Sequence of therapy— selectivity of response

After several days of therapy with Efudex® (fluorouracil), erythema may begin to appear in the area of the lesions; this reaction usually reaches its height of unsightliness and discomfort within two weeks, declining after discontinuation of therapy. This reaction occurs in affected areas. Since the response is so predictable, lesions that do not respond should be biopsied.

Acceptable results

Treatment with Efudex provides highly favorable cosmetic results. Incidence of scarring is low. This is particularly important with multiple facial lesions. Efudex should be applied with care near the eyes, nose and mouth.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)-aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

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Nutley, N.J. 07110

This patient's lesions were resolved with

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fluorouracil/Roche®

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When you can't control the cause...

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An antihistamine-decongestant available in slow release capsules containing phenylephrine hydrochloride, 25.0 mg.; chlorpheniramine maleate, 7.5 mg.; pyrilamine maleate, 25.0 mg.; methapyrilene hydrochloride, 12.5 mg. Also available as liquid in regular non-sustained release dosage.

PALOHIST MILD

Same sustained release capsules and formula as PALOHIST except in one-half strength per capsule.

HISTOR-D

A sustained release capsule that allows prompt symptomatic relief and a continuing release of remaining medication over a period of 6 to 10 hours. Each capsule contains chlorpheniramine maleate, 8 mg.; phenylephrine HCl, 20 mg.; methscopolamine nitrate, 2.5 mg.

Complete information for usage available to physicians upon request.

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Integument!

Our skin—the human integument—covers us, defines us, protects us. But skin is subject to cuts, burns, abrasions. And infections. Neosporin Ointment fights infection by providing broad antibacterial action against susceptible skin invaders. It contains antibiotics that are rarely used systemically, reducing the risk of sensitization.



INDICATIONS: *Therapeutically*, used as an adjunct to appropriate systemic therapy for topical infections, primary or secondary, due to susceptible organisms, as in: • infected burns, skin grafts, surgical incisions, otitis externa • primary pyodermas (impetigo, ecthyma, sycosis vulgaris, paronychia) • secondarily infected dermatoses (eczema, herpes, and seborrheic dermatitis) • traumatic lesions, inflamed or suppurating as a result of bacterial infection.

Prophylactically, the ointment may be used to prevent bacterial contamination in burns, skin grafts, incisions, and other clean lesions. For abrasions, minor cuts and wounds accidentally incurred, its use may prevent the development of infection and permit wound healing.

CONTRAINDICATIONS: Not for use in the external ear canal if the eardrum is perforated. This product is contraindicated in those individuals who have shown hypersensitivity to any of the components.

PRECAUTION: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Complete literature available on request from Professional Services Dept. PML.

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The Weight of Professional Opinion

It's time for action to defend the laws and regulations that protect your patients against drug substitution.

These professional and trade organizations are united in supporting antisubstitution statutes and regulations:

The American Academy of Dermatology

The Board of Directors of the American Academy of Family Physicians

The Executive Board of the American Academy of Neurology

The Committee on Drugs of the American Academy of Pediatrics

The American College of Allergists

The Executive Committee of the American College of Obstetricians and Gynecologists

The Board of Regents of the American College of Physicians

The Board of Trustees of the American Dental Association

The Board of Trustees of the American Medical Association

The American Psychiatric Association

The Executive Committee of the National Association of Retail Druggists

The Board of Directors of the Pharmaceutical Manufacturers Association

The National Wholesale Druggists' Association



Joint Statement on Antisubstitution Laws and Regulations

The purpose of this statement is to affirm the support of the participating organizations for the laws, regulations and professional traditions which prohibit the unauthorized substitution of drug products.

Traditionally, physicians, dentists and pharmacists have worked cooperatively to serve the best interests of patients. Productive cooperation has been achieved through mutual respect as well as a common concern for the ideals of public service. This mutual respect has been reflected, in part, by joint support over the years for the adoption and enforcement of laws and regulations specifically prohibiting unauthorized substitution and encouraging joint discussion and selection of the source of supply of drug products. The basic principles of medical, dental and pharmacy practice are thus utilized and preserved in the interest of patient welfare.

The antisubstitution laws have not obstructed enhancement of the professional status of pharmacy any more than they have in and of themselves guaranteed absolute protection from unsafe drugs, or freed physicians, dentists and pharmacists from their responsibilities to patients. As a practical matter, however, such laws and regulations encourage interprofessional communications regarding drug product selection and assure each profession the opportunity to exercise fully its expertise in drug usage, to the advantage of patients.

Physicians and dentists should be urged to increase the frequency and regularity of their contacts with pharmacists in selection of quality drug products, recognizing that economies to patients can be improved through such communication, taking into account the patients' needs. The pharmacist's knowledge of the chemical characteristics of drugs, their mode of action, toxic properties and other characteristics that assist in making drug selection decisions should be utilized to the fullest extent practicable by physicians and dentists in serving their patients.

Since drug product selection entails knowledge derived from clinical experience, the physician's and dentist's roles in product selection remain primary and do not permit delegation of decisions requiring medical and dental judgments. A broader role in therapy will evolve for pharmacists as improved understanding and cooperation among the professions continue to grow.

There has been no evidence that there are convincing reasons to modify or repeal existing laws and regulations prohibiting the unauthorized substitution of another drug product for the one specified by a prescriber. It is our belief that such laws and regulations merit the joint support of the medical, dental and pharmaceutical professions and the pharmaceutical industry.

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SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 70 JANUARY, 1974 NUMBER 1

TIC DE GILLES DE LA TOURETTE: CASE REPORT AND BRIEF DISCUSSION

R. BRUCE FORD, M.D.*
EMANUEL C. BEYER, M.D.**

The recognition of Tic de Gilles de la Tourette is especially important because effective treatment is now available. Tourette's disease characteristically begins with tics of the face or neck, spreads to the upper trunk, and rapidly involves the entire body. Shortly after the beginning of motor tics, vocal tics consisting of grunting, coughing, barking or other inarticulate sounds begin and increase in frequency (Field, 1966). Coprolalia, an involuntary use of obscene words, may occur at a variable time afterwards. Echolalia, repetition of phrases, may also occur. The progression from motor tics to vocal tics to coprolalia with frequent partial remissions and exacerbations marks the clinical course. Mental retardation or clinical brain damage are not usually present.

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(Dr. Beyer was a resident in Family Practice at the Spartanburg General Hospital at the time this paper was prepared).

Psychoanalysis, electroshock, behavior modification, and psychotherapy have been employed in Tourette's disease with minimal success. The use of major tranquilizers resulted in some improvement in 50 per cent of the patients. However, rarely were the symptoms completely controlled (Eisenberg, 1959). In 1961, Seegnot (1961) used haloperidol (Haldol) to treat a patient with Tourette's disease who had approximately 1,000 tics daily and constant coprolalia for 25 years. Haloperidol therapy resulted in complete alleviation of the coprolalia and reduced the tics to two to three per day.

CASE REPORT

K. S. was a 12 year old, caucasian male with an I. Q. of 112. His prenatal, birth and early developmental history were unremarkable. At age nine, he began to lick his lips almost continuously. Soon afterwards, he began to jerk his head back and forth, utter grunting sounds, and developed facial tics. He was referred to a mental health center and treated for nearly two years with individual and group psychotherapy and Valium. His tics became progressively worse, and he was seen by one of the authors (RBF) at age 12. At this point, he was failing and had dropped out of school because of his symptoms.

His tics were severe with frequent jerking of his head from one side to the other with twitching of his face. He made loud stacatto sounds at the rate of about twelve per minute that sounded something between "oh," "oh" and a sharp dog bark. These were less frequent when he relaxed. These sounds were so loud they could be heard from one insulated office to another. He had become socially isolated. His mother said he talked to himself under his breath but no such behavior was detected in the office. The diagnosis of Tourette's disease was made at this time and therapy with haloperidol instituted.

After some initial alteration of dosage and the addition of antiparkinsonian therapy, his symptoms have been well controlled on haloperidol 3 mg. per day. Rare tics and an occasional low grunting noise occurred at this dose level. Interestingly, he became severely depressed about one week after haloperidol was begun, but the depression responded well to Elavil 10 mgs. q.i.d. At 18 months follow-up, he had regained most of his self-confidence and was relating well socially. His grades in school have come from failing to above average. Only on rare occasions, when under emotional stress, does a tic occur now.

The patient was seen approximately every week for the first month and then every two weeks for the next two months because of his depressive symptoms, high anxiety level, difficulty with muscular spasms from the haloperidol and need to reassure his parents. He was then seen monthly for three months, then every two months for four months, and is now being followed every three months.

DISCUSSION

Tourette's disease occurs slightly more than twice as frequently in males as in females, which mimics the normal sex distribution of childhood tics. No race predilection or exception is present. The onset of symptoms is generally between ages five to ten with coprolalia beginning at near puberty. No familiar mode of inheritance is evident (Lucas, 1970; Zausmer, 1954), and Ellison (1964) reported a monozygotic affected twin with a non-affected twin. One contradictory finding was a report from Lucas (1973) that one of his patients with Tourette's disease had a child that developed Tourette's disease at the age of 5 years.

The etiology of Tourette's disease has been obscure. Lucas (1970) presented the EEGs from twelve of his patients and reviewed EEGs from 46 cases in the literature. Twenty eight had normal tracings. Thirty tracings showed abnormalities suggestive of cerebral dysfunction, mostly non-specific in nature. However, six cases had EEGs with sharp biphasic or tripasic spikes. In a later report, Lucas (1973) reported an enlarged series of 21 of his patients with ten of the eighteen patients showing normal electroencephalograms.

The neuropharmocological defect in Tourette's disease has not been found, but some interesting studies have been done. by utilizing florescent antibody techniques, two major types of pharmocologic pathways in the brain have been mapped: the dopamine mediated pathways and the norepinephrine pathways (Ungerstedt, 1971). One dopamine pathway originates in the substantia nigra and terminates in the corpus striatum. This dopamine pathway is degenerated in patients with Parkinson's disease (Snyder, 1973). Furthermore, L-Dopa therapy in patients with Parkinson's disease can produce a toxicity with symptoms similar to those of Tourette's disease.

From this observation, plus other pharmacologic evidence, the symptoms of Tourette's disease may be related to an increase in dopamine or a blockade of the dopamine feedback system in the corpus striatum. Haloperidol has been shown to increase the rate of turnover of dopamine in the dependent pathways, and may control the symptoms of Tourette's disease by decreasing the effective quantity of dopamine present in these pathways (Messiba, 1971).

Mayerhoff and Snyder (1972) designed an experiment to test this theory utilizing the selective effects of d- and l- isomers of amphetamine in a child with both hyperkinetic syndrome due to minimal brain dysfunction and Tourette's disease. D-Amphetamine markedly exacerbated the tics while L - Amphetamines failed to influence them in this double blind cross-over study. Both Amphetamine isomers

lessened the patients hyperactivity to a similar extent. Their results suggested that the accentuation of symptoms of Gilles de la Tourette's disease is mediated by brain norepinephrine while its effects on lessening hyperactivity may primarily involve dopamine.

Shapiro (1972), with a series of 37 cases, reports four out of five cases achieve 95 to 99 per cent remission and the fifth about 80 per cent relief. This is a disease that was previously considered progressive with marked personality changes and deterioration (Freedman, 1967).

Accentuation of tics by increased anxiety or stress does not rule out Tourette's disease, but actually may be characteristic of the disease. Motor tics beginning in the face and neck and spreading to involve the rest of the body, and accompanied by vocal tics and possibly coprolalia and echolalia, are characteristic of Tourette's disease.

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A PSYCHOLOGIST LOOKS AT THE SMOKING HABIT AND HOW TO STOP IT

SYLVESTER R. MLOTT, PhD*

During his daily medical routine, the average physician encounters many patients who seek his help and guidance in their effort to stop smoking. Many must terminate the cigarette habit for medical reasons. Knowing quite well that the habit is strongly entrenched in emotional and physiological components, how should he direct these people in their endeavor?

Unfortunately, the "shock" technique of showing slides of cancerous or damaged lung tissue does not always work since the use of denial, one of our strongest psychological defenses, comes into play and the negative reinforcement of the slides tends to have little effect on the individual's smoking pattern. Other techniques, such as aversive conditioning,[1] in which a mild electric shock or other noxious stimulus is paired with the reaching, lighting or smoking of a cigarette, have been found to be only minimally effective, if at all, with general criticism directed at both design and methodology.[2] Other deterrents such as antismoking posters,[3] mass communication, including commercials offered on television,[4] learning self-control by doling out cigarettes to oneself,[5] and techniques such as breath holding, coverant control and negative practice[6] have been found to be equally ineffective.

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Before a person can actually stop any habit, he must know what made him start it in the first place; therefore, in his effort to help his patient overcome the smoking habit the physician should focus upon a nonthreatening discussion of why people initiate smoking. This is the first step on the tumultous road to breaking the habit. Probably the most important reason for starting the habit is the desire to conform to social and cultural factors. Once the habit is started, the physiological addiction to nicotine perpetuates it. The act of smoking allows one to cover up social anxiety by providing an object to "fidget with". All the motions involved in taking the cigarette from the package to that first puff helps to reduce tension and provides a rewarding reason for having a cigarette. Since decreased anxiety is obtained from smoking, it then becomes a compulsive act, and like all compulsive behavior, is a device for increasing feelings of safety and serves as a kind of "magic spell" to protect one from threat. Secondly, smoking allows the individual to feel grown-up and mature while at the same time serving as an oral pacifier. Just as a child enjoys the nipple or pleasure associated with the lips, the grown-up enjoys his cigarette. We have also been psychologically conditioned to believe smoking is a sign of masculinity (remember the television commercials of the rugged outdoor type of cowboy in Marlboro Country) or a sign of femininity

(as depicted in the sensuous and independent woman in the Virginia Slims commercials). Lastly, we have been conditioned to believe a cigarette helps us relax, yet investigations have revealed that smoking increases muscular unsteadiness.[7] It's not the cigarette itself, but the break in routine that is relaxing.

Now that the idea of how the habit was started has begun to materialize, the physician should build his patient up psychologically to stop smoking. Encourage him to look at himself more positively. Help him realize that although he has weaknesses, he also has strengths and focus upon the fact that if he really wants to stop smoking, he can. He learned to be a smoker; now he can learn to be a nonsmoker. We all tend to smoke more when tense, fatigued, or uncomfortable. Unfortunately, vacations don't always coincide with the time one decides to kick the habit; but an effort should be made to get more rest, avoid conflicts, arguments and turmoil, and to condition oneself to relax throughout the day without the "prop" of a cigarette. Since support and reassurance are needed by all of us in any difficult endeavor, the would-be nonsmoker should inform those around him, family, co-workers, and friends, of his intention to stop smoking.

Now comes the hard part. Encourage the patient to take out a cigarette and look at it. Ask him to tell himself that if he really wants to stop smoking, he can *never*, in his entire lifetime, put a cigarette into his mouth and puff on it. Whether or not he can honestly accept this ultimatum of "never again" will determine his success at breaking the habit. Many people make a firm declaration of never smoking again and then begin to wonder if a cigarette tastes the same, feels the same, etc. Like an alcoholic, he must realize that once he has given up the habit, the temptation to smoke will linger and total and complete ABSTINENCE must be practiced if he is to succeed in conquering the habit. Also, have him mull over the realization that he just might be successful in his endeavor. Many fear that they will succeed in terminating their smoking habit. This is frightening to them since it takes away their crutch, allows vulnerability to nervousness and permits others to view their uncomfortableness.

Once the patient has decided that he definitely will terminate the smoking habit and has accepted the fact that temptation will always threaten, he is ready to begin breaking the environmental cues that previously elicited smoking. The old routine and its environmental cues must be non-reinforced, or extinguished, and replaced by new non-cigarette associated cues. The idea is to change completely the routine followed in settings where he previously smoked. This is fairly easy to accomplish in situations where you know smoking regularly occurs, such as breakfast, where you normally follow a somewhat regular routine. To give a specific illustration, a man who customarily smokes a cigarette with his first cup of morning coffee should attempt to try one or another means of not smoking in that context. If his usual routine involves arising from bed, putting on robe and slippers, plugging in coffee pot, going outside for morning paper, then sitting down at kitchen table with a lighted cigarette and cup of coffee, he should break up this routine thereby changing the environmental cues associated with that cigarette with his morning coffee. Perhaps he could forego reading the paper in the mornings or take his coffee to a different room to be enjoyed. The important objective is to break up the routine of having the cigarette, at a certain time, at a certain place, while doing certain things.

Of course, there are some situations where the cigarette urge is actually not in our repertoire of conscious acknowledgment. Such situations come as somewhat of a surprise when we begin a program of non-smoking and need a modified approach. An example follows: Mr. X

usually cuts his grass in a somewhat predetermined manner, starting on the front lawn and slowly working to the back. He was surprised to find that as he approached the rear gate, he had the urge to smoke a cigarette. (When making up a list of places or settings eliciting smoking, the list did not include cutting the grass at home.) Realizing that changing of his routine, thereby changing environmental cues, must be practiced, he did not give in to the cigarette urge but continued the grass cutting for several more minutes. When he did stop, he found himself wanting his usual glass of iced tea and, once again, to break the former behavioral pattern, changed his routine and decided not to have any liquid at all. He then found himself headed for the picnic bench where he always enjoyed his "breaks" involving cold drink and cigarettes. Again, realizing the importance of breaking the sequence of stimulus-response cues, he chose the patio steps as his resting place rather than the usual picnic bench, thereby assuring the non-reinforcement of the cues associated with smoking.

In summary, this paper illustrates one approach the physician might use in helping his patient terminate the smoking habit. In the final analysis, this approach, like any other approach, depends upon the individual's sincere desire to terminate the habit.

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EFFECTIVE USE OF THE STATIC BRAIN SCAN

JOSEPH P. JACKSON, JR.*

The purpose of this article is to review the general principles of static brain scanning, its current clinical application, and some limitations of the technique as demonstrated by examples of false positive scans. The practicing physician should be aware of his role in the effective interpretation of brain scans and offer clinical information to the radiologist which will improve his accuracy.

Brain scanning is predicated upon the basic premise that compromise of the complex system called the blood-brain barrier, i.e. capillary endothelium, glial sheath and neuronal membrane, will result in increased uptake.[1] The radiologist can distinguish between neoplastic and non-neoplastic lesions in 90 per cent of cases by integrating such parameters as the size, shape, composition, location and vascularity of the lesion.[2] Lesions less than 1.5 cm to 2 cm are not detectable by routine studies.[3]

The brain scan has now attained a status equal to cerebral arteriography, pneumoencephalography and ventriculography as a method to demonstrate intracranial lesions. The procedure offers a safe, simple, rapid test for screening or follow-up that is available on an outpatient basis for the patient with a suspected lesion, or as a method of evaluating therapeutic response. The brain scan has proved beneficial in the diagnosis of primary brain tumors, metastatic disease,

*Medical University of South Carolina.

The effect of potassium perchlorate

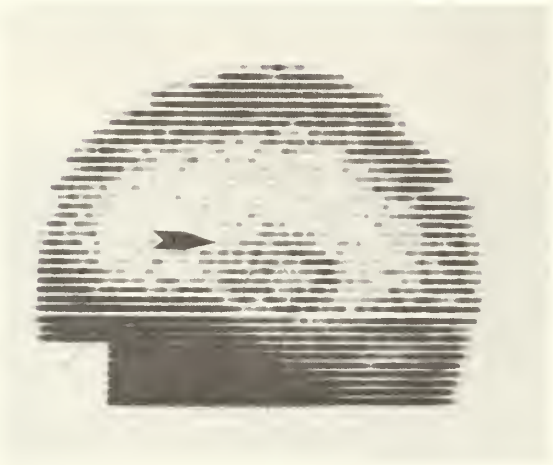


Fig. 1 False positive due to uptake in the choroid plexus, left lateral view.



Fig. 2 Same patient after oral dose of potassium perchlorate.



Fig. 3 Left lateral view of pediatric patient with hematoma following traumatic insertion of scalp vein needle.

cerebral vascular accidents, intracranial injury, arteriovenous malformations, intracranial inflammation, cerebral aneurysm, cerebral sarcoidosis, cerebral contusion and acute multiple sclerosis.[1]

The brain scan has become an especially valuable asset to the neurologist and the neurosurgeon because it increases the likelihood of making the correct diagnosis without additional risk to the patient. When presented with a patient with headaches, seizures, or progressive neurologic deficit, he can be reasonably sure of detection of space occupying lesions. The scan has the added advantage of detecting lesions in areas where the cerebral angiogram or encephalogram are less likely to be productive. To illustrate, the area between the middle cerebral artery and posterior circulation in the parietal and superior temporal regions is difficult to demonstrate by angiography but is well seen on the brain scan. On the other hand, lesions of the basal ganglia are not well outlined on the brain scan and it is less reliable in the subtentorial areas and the sella turcica. An exception to this is a meningioma of the tuberculum sellae. In fact, brain scans demonstrate meningioma so effectively that a negative scan, when there is clinically expected meningioma, has a very high probability of ruling out meningioma. The brain scan gives an early positive result in cerebral hemorrhage and a somewhat later result in ischemic cerebrovascular accidents.[3]

As previously stated, the majority of lesions show up as areas of increased radioactivity, but there are exceptions. These are cystic brain lesions, dilated ventricles and metallic plates in the skull which show decreased uptake. One should also know that the choroid plexus in 10 per cent of patients will have sufficient uptake to confuse interpretation, as seen in Figures 1 and 2. This problem can be overcome by an oral dose of potassium perchlorate, given 30 to 60 minutes before injection of the radio-active material or by use of 99mTc DTPA which is not taken up by the choroid plexus.[2]

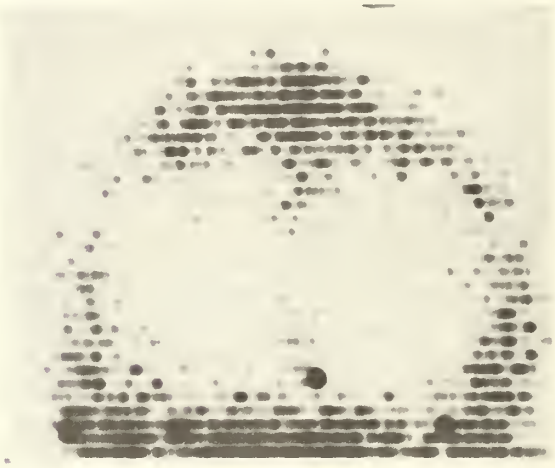


Fig. 4 Normal anterior view.



Fig. 5 Area of increased uptake in right frontal region where bone flap was removed in a previous operation for brain tumor.

If the radiologist is to make an accurate interpretation, it is imperative that he have pertinent clinical information. For example, false positive scans can be produced by craniotomy defects, old skull fractures, burr holes, hemagiomas, fibrous dysplasia and scalp lesions.[1] This demonstrates that the clinician should request skull films and perform a thorough examination to obtain pertinent historical and physical findings. The lack of clinical information can easily produce false positive results as demonstrated by the several examples below.

In summary, it has been shown that the static brain scan has become a valuable diagnostic tool for all physicians concerned with the detection of intracranial pathology. Because of its versatility in the detection of a wide variety of lesions, the brain scan serves as the best screening procedure currently available. It provides unique information not offered by other techniques and is a simple, expedient, relatively benign procedure which is available on an outpatient basis.

Although of tremendous clinical value, in order to be used maximally, the brain scan must be interpreted by the enlightened radiologist, in consort with the informed clinician who is aware of the contribution he can make to the accuracy of the diagnosis.

An old skull fracture

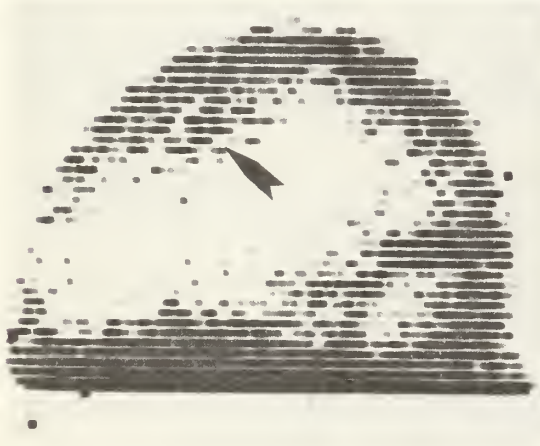


Fig. 6 Scan originally interpreted as occlusion of left middle cerebral artery. When furnished the clinical information that the patient had sustained a depressed skull fracture, the radiologist made the proper interpretation.



Fig. 7 Postop. skull film, same patient, showing defect correlating with the area of increased uptake on the scan.

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President's Pages



Physician's Bill of Rights

In the face of biased attacks, it behooves us to present a united front to our critics. I believe this "Physician's Bill of Rights" is appropriate at this time for each of us to subscribe to as individuals and perhaps recommend to our Association that we officially adopt it.

1. We support the goal of making available high quality health care to all people. However, we vigorously oppose employing any means to attain this goal which would compromise the patient's freedom of choice or the physician's right to care for his patients in the manner which his training, experience and judgment dictate to be most effective.
2. We believe physicians, as professionals, should be allowed to use their knowledge and training for the benefit of all people without government interference and harassment or relegation to the status of government employees.
3. We reject as a matter of principle the arbitrary development of compensation guidelines for physicians' services by government and insurance companies without prior participation and approval.
4. We reject as a matter of principle all formulas for compensation for physicians' services not based upon usual, customary and reasonable fee concepts.
5. As part of their responsibility to the policyholder and to the public, insurance companies and others providing coverage for medical care should specify in clear and understandable language all benefit limitation.
6. We reject as a matter of principle insurance companies and others providing medical service coverage implying to policyholders that physicians' charges are excessive.
7. If an insurance company questions a physician's charges, its medical director or another qualified professional should attempt to resolve the problem by contacting the physician. If they are unable to reach an agreement, the company should present its complaint to the local medical society's peer review committee.
8. We reject discrimination in physicians' compensation for similar services based solely upon geographic location. We contend that this discourages physicians from establishing practices in rural and other areas already severely affected by a maldistribution of the physician population.

9. Governing boards and hospital authorities will not be permitted to unilaterally develop bylaws governing the conduct of medical staffs without the participation and formal approval of the staffs involved. Such action will result in prompt counter action, beginning with an appeal to the Joint Commission on Hospital Accreditation and including legal or other steps appropriate to the situation.

10. Only physicians licensed to practice medicine in all its branches shall be authorized to admit patients or discharge them from hospitals and other health facilities.

11. Complaints by patients regarding the quality and manner of care rendered by a physician should be made in writing, notarized, and submitted to the physician's local county medical society. Patients should be informed that it may be necessary to confront the accused during review proceedings.

12. Unauthorized substitution of prescribed items will be viewed by physicians as the illegal practice of medicine and will be met with counter action, legal or otherwise as the situation warrants.

*This was introduced to the House of Delegates. AMA, by the Illinois State Medical Society.

Harold P. Hope, M.D.
SCMA President

The Journal of the South Carolina Medical Association

50 YEARS AGO

January, 1924

The Surgeon General urged physicians of the state to join the reserve corps. At the meeting in Charleston the year before, the organization of the Woman's Auxiliary was authorized. The Annual Year for the year was scheduled at Orangeburg. Dr. J. Heyward Gibbes of Columbia wrote on the modern treatment of diabetes mellitus.

Editorials

Mid Winter Meeting 1973

Here are some hasty and incomplete impressions of The Mid Winter Meeting, 1973, jotted down shortly after adjournment to meet an impending deadline.

Perhaps it was the warmth of the Yuletide Season or maybe the contrast to the cold, blustery weather outside, but inside both the Council meeting on Saturday and the House of Delegates convocation on Sunday, there seemed to be an exceptional degree of reconciliation, prudent judgment, and foresight. Harold Hope is to be praised for starting the Mid Winter meeting.

Items to wit the spirit of reconcilation and hope:

Item One: Harry Metropol, Chairman of the Insurance Committee, recommended and Council accepted as best a Blue Cross-Blue Shield Health and Life plan to be offered to all members of SCMA at a very low cost and to be administered through the home office of SCMA. Also, Blue Cross President, Joe Sullivan, appeared to Council and it seemed that accepting a solid peer review system, and a nomenclature and coding system, and honoring of assignments by Blue Shield will be a reality by June 1974!

Item Two: Governor John West made a well-received address to the House of Delegates in which he acknowledged that physicians are part of the solution and not the cause of any problems in the health care system. He asked for input from physicians in other areas as well as health care. This position was ratified and amplified by S. C. Representatives Carroll Campbell and Bennett Hendricks in a stimulating discussion designed and well-moderated by Dexter Rogers.

Item Three: Last summer's decision to construct a three-story Medical Association Headquarters building at the cost of almost one million dollars was overwhelmingly sustained by the House of Delegates despite some very legitimate grass roots opposition. This building was confirmed in a spirit of togetherness, hopefulness, and optimism that was strongly enunciated by Bill Hunter from the podium and clearly demonstrated by the members from the floor. This newfound unity and energy will carry SCMA to unprecedented heights of service to the people of South Carolina and benefit to its physicians if they continue to flourish!

EEK

Physician, Heal Thyself

Self government is not inherent to the practice of medicine. We physicians do not have the inalienable right to govern ourselves in the conduct of our profession. The privilege of self control and self regulation has been accorded our profession by a public and by a government aware and respectful of our unique moral and scientific position in the affairs of man. As scientific and moral expertise accrues outside our profession, our own eminence, based on a changeless and enduring posture, loses its uniqueness; and then, as the day follows night, we lose our prerogatives of self government. We find in our wonderland of social change, just as Alice in her own Wonderland found, that

"We must run faster and faster just to keep up."

In this great country the medical profession retains rights of self government far superior to any other place in the world. But to maintain this position we must hone our rectitude to razor sharpness. We must be far better than society in general. We must keep running faster and faster. And our virtue must be apparent to the government and to the public at large.

In the main, people evaluate their medical service on the basis of three criteria: Availability, Quality, and Cost.

Availability of medical care is of primary importance to people. To ensure that medical care is available to every person in South Carolina and, of equal importance, to ensure that each person in need can get to the available medical care, we ask that:

1. Each county medical society exhort each of its members to provide adequate coverage when not on duty. It is the responsibility of physicians to answer the necessary calls of their patients. In the old days this obligation was met by 24-hour per day availability of the individual physician. Fortunately, this is no longer necessary, but the obligation remains. The solution will vary from county to county. In some areas referral of patients to hospital emergency rooms might be satisfactory, while in other areas physician-pairing or other arrangements would be preferable. The local medical society should provide motivation and assistance to its members in ensuring adequate coverage at all times.
2. Each county medical society furnish some contact to the office of the Executive Director to refer any patient from that county seeking medical services, or to refer doctors from that county needing coverage.
3. Each society make its membership and population aware of these efforts to ensure medical availability.

Quality of medical care is of great concern to the people of South Carolina. While many standards and regulatory systems exist to assure the high quality of the profession, the general public needs a helpfull avenue to vent their irritations natural to human intercourse. Grievance Committees exist in every county medical society for this purpose. Believing that stored-up resentment can be harmful and that rapid airing and adjudication of complaints is desirable, we ask:

That county medical societies first amend their Grievance Committees, then ensure their accessibility to the public, and then let them be publicized.

We believe that implementation of these recommendations will do much to convince the public that the medical profession's interest is where it is and where it should be—*for the benefit of all the people that need us.*

EEK



The irritations of man's day are often reflected in his gut.

The causes of irritable colon and the diarrheal symptoms that often accompany it can be as diverse as the systemic and emotional irritations man is faced with daily.

Although the mucoid nature of stools and the occurrence of diarrheal episodes coincident with times of emotional stress may be valuable clues to the functional nature of the disorder, irritable colon must often be diagnosed by exclusion. Such diagnostic exploration takes time. Discovery of the nature of any emotional problems may take more. During that time, Lomotil® is an ideal agent for controlling diarrheal symptoms.

Lomotil tablets are small, easy to carry and easy to take. They act promptly and effectively. Secondary effects are relatively infrequent and, once the first force of the diarrhea is controlled, maintenance is frequently effective on as little as one fourth of the initial dosage.

These same characteristics make Lomotil useful in controlling the diarrhea associated with gastroenteritis, antibiotic therapy and acute infections.



Lomotil®

TABLETS/LIQUID

Each tablet and each 5 ml. of liquid contain:
diphenoxylate hydrochloride . . . 2.5 mg.
(Warning: May be habit forming)
atropine sulfate . . . . . 0.025 mg.

takes care of the gut issue in irritable colon

IMPORTANT INFORMATION: *This is a Schedule V substance by Federal law; diphenoxylate HCl is chemically related to meperidine. In case of overdosage or individual hypersensitivity, reactions similar to those alter meperidine or morphine overdosage may occur; treatment is similar to that for meperidine or morphine intoxication (prolonged and careful monitoring). Respiratory depression may recur in spite of an initial response to Nalline® (nalorphine HCl) or may be evidenced as late as 30 hours alter ingestion. LOMOTIL IS NOT AN INNOCUOUS DRUG AND DOSAGE RECOMMENDATIONS SHOULD BE STRICTLY ADHERED TO, ESPECIALLY IN CHILDREN. THIS MEDICATION SHOULD BE KEPT OUT OF REACH OF CHILDREN.*

Indications: Lomotil is effective as adjunctive therapy in the management of diarrhea.

Contraindications: In children less than 2 years, due to the decreased safety margin in younger age groups, and in patients who are jaundiced or hypersensitive to diphenoxylate HCl or atropine.

Warnings: Use with caution in young children, because of variable response, and with extreme caution in patients with cirrhosis and other advanced hepatic disease or abnormal liver function tests, because of possible hepatic coma. Diphenoxylate HCl may potentiate the action of barbiturates, tranquilizers and alcohol. In theory, the concurrent use with monoamine oxidase inhibitors could precipitate hypertensive crisis.

Usage in pregnancy: Weigh the potential benefits against possible risks before using during pregnancy, lactation cr in women of childbearing age. Diphenoxylate HCl and atropine are secreted in the breast milk of nursing mothers.

Precautions: Addiction (dependency) to diphenoxylate HCl is theoretically possible at high dosage. Do not exceed recommended dosages. Administer with caution to patients receiving addicting drugs or known to be addiction prone or having a history of drug abuse. The subtherapeutic amount of atropine is added to discourage deliberate overdosage; strictly observe contraindications, warnings and precautions for atropine; use with caution in children since signs of atropinism may occur even with the recommended dosage.

Adverse reactions: Atropine effects include dryness of skin and mucous membranes, flushing and urinary retention. Other side effects with Lomotil include nausea, sedation, vomiting, swelling of the gums, abdominal discomfort, respiratory depression, numbness of the extremities, headache, dizziness, depression, malaise, drowsiness, coma, lethargy, anorexia, restlessness, euphoria, pruritus, angioneurotic edema, giant urticaria and paralytic ileus.

Dosage and administration: ***Lomotil is contraindicated in children less than 2 years old.*** Use only Lomotil liquid for children 2 to 12 years old. For ages 2 to 5 years, 4 ml. (2 mg.) t.i.d.; 5 to 8 years, 4 ml. (2 mg.) q.i.d.; 8 to 12 years, 4 ml. (2 mg.) 5 times daily; adults, two tablets (5 mg.) t.i.d. to two tablets (5 mg.) q.i.d. or two regular teaspoonfuls (10 ml., 5 mg.) q.i.d. Maintenance dosage may be as low as one fourth of the initial dosage. Make downward dosage adjustment as soon as initial symptoms are controlled.

Overdosage: Keep the medication out of the reach of children since accidental overdosage may cause severe, even fatal, respiratory depression. Signs of overdosage include flushing, lethargy or coma, hypotonic reflexes, nystagmus, pinpoint pupils, tachycardia and respiratory depression which may occur 12 to 30 hours after overdose. Evacuate stomach by lavage, establish a patent airway and, when necessary, assist respiration mechanically. Use a narcotic antagonist in severe respiratory depression. Observation should extend over at least 48 hours.

Dosage forms: Tablets, 2.5 mg. of diphenoxylate HCl with 0.025 mg. of atropine sulfate. *Liquid,* 2.5 mg. of diphenoxylate HCl and 0.025 mg. of atropine sulfate per 5 ml. A plastic dropper calibrated in increments of ½ ml. (total capacity, 2 ml.) accompanies each 2-oz. bottle of Lomotil liquid.

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THE TWENTY-SEVENTH CLINICAL CONVENTION OF THE AMA

JOHN C. HAWK, JR., M.D.*

At each AMA convention there is usually one dominant issue. At the Clinical Meeting of 1973 it was PSRO. A few physicians appear to regard PSRO as an opportunity for the medical profession to demonstrate leadership in a program of self analysis and even self-discipline. The vast majority, however, quite evidently regard it as a noose around our individual and collective necks—one that we are presently being allowed to adjust to some extent for our own comfort, but one that can be pulled tight at any time by the Secretary of Health, Education and Welfare.

The important place assigned to PSRO at this convention is indicated by the following:

1) A day-long special program on PSRO was held on Saturday, December 1, the day preceding the first meeting of the House of Delegates.

2) Two detailed Board of Trustee reports were devoted to PSRO, and one other alluded it.

3) Two Council reports dealt in part with PSRO.

4) Twenty-one resolutions addressed themselves to PSRO, seventeen of these referring to PSRO directly in the title of the resolution.

5) Dr. Charles C. Edwards, Assistant Secretary for Health, U. S. Department of HEW, was invited to address the House as a special order of business at the opening of the Tuesday session, December 4.

These were the scheduled events. Unscheduled, but of critical importance was the introduction at the opening session on Sunday of an "Open Letter" to the House of Delegates, signed by thirty-four Congressmen, including Tom Gettys and Floyd Spence of South Carolina, urging the House to pass a resolution specifically calling for the repeal of PSRO and committing all-out efforts of the American Medical Association to that end. This set the stage for the highlight of the meeting at the beginning of the final session Wednesday morning.

Through the efforts of a group of delegates and others, Congressman Philip M. Crane of Illinois (one of the initiators of the "Open Letter") came from Washington to Anaheim, and was accorded an opportunity to speak to the House as it sat in recess for a period of almost thirty minutes. In a magnificent address, he outlined the background of the passage of PSRO, indicated the reasons that it is a bad law, urged AMA commitment to repeal, and pointed out that such commitment would not necessarily be fruitless, would not weaken AMA efforts to effect other pending and future health legislation, and would not prevent the AMA from seeking amendments to make PSRO more workable and less objectionable

*Delegate
Anaheim, California, December 1 to 5, 1973

until such time as repeal could be effected.

The response to Congressman Crane's address was electrifying. He received a standing ovation, in sharp contrast to the polite but restrained applause for Secretary Edwards the day before. Subsequent speakers on the floor referred to Crane's address as "inspirational" and "stirring."

However, later in the day, the House voted not to go the expense of preparing copies of the address (which would necessarily be from tapes, since the speech was extemporaneous) for general distribution. It is anticipated, however, that copies will be available for those who request them and that the speech may be published in a modified form. All physicians should read it when they have the opportunity—or better still, hear the tape to get the full impact.

SATURDAY CONFERENCE ON PSRO

The special program on Saturday included speeches by Dr. Henry E. Simmons, Deputy Assistant Secretary for Health, Department of HEW, Dr. Robert B. Hunter, Chairman of the AMA Advisory Committee on PSRO, and a member of the Board of Trustees of the AMA, Dr. John D. Porterfield, Director of the Joint Commission on Accreditation of Hospitals, Dr. Carmault B. Jackson, Chairman of the AMA Task Force on Data Collection, Processing and Storage, Dr. Claude E. Welch, Chairman of the AMA Task Force on Guidelines of Care, Dr. Ernest W. Saward, Professor of Social Medicine at the University of Rochester School of Medicine, Dr. David E. Willard, Legal Counsel of the California Medical Association, and Dr. J. W. Johnson, President-elect of the San Diego County Medical Society.

My schedule made me late for part of the Saturday program, and in any case it would be impossible for me to present in any detail the discussions which were held. Dr. Johnson, who had apparently been placed on the program in response to demands for an opposing voice, and only after the printed program had been completed, was the sole speaker to come out strongly against PSRO in all aspects. He urged vigorous action by the AMA to seek repeal of PSRO.

Dr. Malcolm C. Todd, President-elect of the AMA, gave a summation of the program, which included the following points:

PSRO poses the greatest threat of any medical legislation so far passed.

Doctors are not opposed to professional review and certainly favor quality care, but PSRO is glued to cost control.

Despite Senator Bennett's assertion that PSRO is designed to have doctors, not clerks, judge the quality of medical care, there is reason to doubt that this will actually be the case.

Dr. Todd indicated that he felt the AMA had four choices in regard to PSRO.

1) Attempt repeal.
2) Constructive input into the regulations and implementation.
3) Non-participation.
4) Seek appropriate amendments to the law.

Dr. Todd then urged that the AMA take a leading role in seeking to control the implementation of PSRO.

Reference Committee A, to which most of the reports and resolutions about PSRO were assigned, held lengthy hearings which lasted almost all day Monday. The hearings on this subject alone extended over three and a half hours, and about thirty physicians testified. Most of the testimony centered around Report EE of the Board of Trustees and the Council on Medical Service which asserted, "There is no current political viability in an effort to repeal PSRO." Dr. James H. Sammons, Chairman of the Board of Trustees, stated, "Report EE provides freedom, flexibility, and negotiating room for the Board in its efforts to discharge the instructions of the House of Delegates." A number of delegates recalled, however, that these "instructions" by the House of Delegates actually represented only a

response by the House in support of previous recommendations of the Board. Some of the testimony was vivid and emotional.

The obvious importance of PSRO in the future of the practice of medicine was pointed out repeatedly and emphasis was given to the need for all physicians to become as well acquainted with it as possible.

The Daily Bulletin stated in its second issue: "Walk up to any physician attending this convention and ask him what he thinks of the Professional Standards Review Law enacted by Congress last October. Chances are he will say, 'It's a bad law' or words to that effect." This was certainly the tenor of most of the comment at the Reference Committee and elsewhere, but the ideas about what to do about it were varied.

HOUSE ACTION ON PSRO

The Reference Committee's report advised adoption of Report EE with only one or two minor changes. By the time this came to the floor, primarily as the result of Congressman Crane's address, considerable sentiment had developed for passage of a strong demand for repeal of PSRO. At this point, after two or three substitute or amending motions had been offered, an unusual parliamentary move was employed, that of "informal consideration," which allowed numerous ideas to be propounded without being directed towards any specific motion. At a short recess before resuming *formal* discussion, delegates from six states which had previously made various proposals gathered and worked out a compromise amendment. In the opinion of many, this watered down the attitude toward repeal of PSRO, but by this time the hour was late and the House was not disposed to further debate.

The compromise amendment, adopted with virtually no debate, was designed for insertion directly before the last paragraph of Report EE and read as follows:

"The AMA affirms the following principles:

1. That the Medical profession remains firmly committed to the principle of peer review, under professional direction, and
2. That medical society programs of proven effectiveness should not be dismantled by PSRO implementation, and
3. That the Association suggests that each hospital medical staff, working with the local medical society, continue to develop its own peer review, based upon principles of sound medical practice and documentable objective criteria, so as to certify that objective review of quality and utilization does take place; to make these review procedures sufficiently strong as to be unassailable by any outside party or parties; and that the local and state medical societies take all legal steps to resist the intrusion of any third party into the practice of medicine, and
4. That this House of Delegates, as individual physicians and through the Board of Trustees and its Council on Legislation, work to inform the public and legislators as to the potential deleterious effects of this law on the quality, confidentiality and cost of medical care; and the hope that the Congress in their wisdom will respond by either repeal, modification, or interpretation of rules which will protect the public.

"The considered opinion of this House of Delegates is that the best interests of the American People, our patients, would be served by the repeal of the present PSRO legislation. It is also believed that this is consistent with our longstanding policy and opposition to this legislation prior to passage."

The final paragraph of the Report EE remained, however, as follows:

"The considered opinion of the Board

of Trustees and the Council of Medical Services is to recommend to the House of Delegates that the AMA continue to exert its leadership by supporting constructive amendments to the PSRO law, coupled with continuation of the effort to develop appropriate rules and regulations."

Later the House adopted a resolution directing the Judicial Council "to clearly point out to the membership of the Association any and all conflicts, as well as potential conflicts, with the 'Principles of Medical Ethics' as posed by PSRO and other forms of professional review conducted by medical societies and their instrumentalities."

OTHER HOUSE ACTIONS

Many other items were discussed in addition to PSRO, and numerous important decisions were made, including the following:

—The House over-rode the recommendation of the Reference Committee in regard to the Quality Assurance Program of the AHA by adopting a resolution "that the American Medical Association hereby goes on record as disapproving of the Quality Assurance Program of the American Hospital Association in its present form," while at the same time agreeing to offer to work with the AHA to rewrite the Quality Assurance Program Manual to eliminate undesirable QAP features and also continue to encourage establishment of Peer Review Programs which include medical audit and continuing medical education."

—In regard to hospital pre-admission certification the House adopted a resolution "that the AMA take all steps necessary to prevent regulations mandating hospital pre-admission certification under PL-92-603" and that the AMA also "take all legal steps necessary to determine whether such a regulation would indeed be in violation of Section 1801 of PL-89-97 (Medicare Law)."

—Adopted a resolution urging that the AMA and its representatives on the JCAH make certain that the JCAH field surveyors do not compel the use of complicated lists of procedures and operations for delineating clinical privileges of medical staff members. It was reported that the JCAH is already taking action to implement the intent of this resolution.

—Adopted report AA of the Board of Trustees in regard to action taken to seek elimination of discriminatory price controls. Most of these actions had already been reported in the *American Medical News*. Further, adopted a resolution that the AMA continue to pursue as a matter of high priority the relief of physicians from discriminatory and unfair regulations under the Economic Stabilization Program, using all available administrative resources, and that the Board of Trustees be authorized to institute appropriate legal action when so advised by legal counsel. Also solicited support from state and county medical societies and from all physicians in this program.

—After studying in detail the reports from the Board of Trustees and two resolutions in regard to the Medical Liability Commission, organized in September, 1973, to make a concerted effort to ameliorate the complex problems of medical professional liability, specifically directed that the Board of Trustees grant organizational support for the Medical Liability Commission, that basic research in the field of medical liability be carried out, and that state and local associations and other organizations be urged to give their support to the Medical Liability Commission and to submit recommendations to it. The House of Delegates asserted also, "We cannot accept, endorse or concur with the report of the HEW Secretary's Commission on Medical Malpractice in view of the reasons given in the 'dissenting and separate reports' by so many of the Commission members and concurred in by so many Commissioners."

—Confidentiality of medical information was the subject of one Council report and three resolutions. The Council report was adopted and was further

strengthened by the South Carolina Delegation's amendment as follows:

"And we further request the Council on Legislation to prepare model legislation on preservation of confidentiality as a guide to possible state legislation and to present said model legislation at the 1974 Annual Meeting."

—With reference to a Council on Medical Service report about the Aetna Life and Casualty surgical predetermination form, the House affirmed previous policy by the following:

"Physicians also should be reminded of the manifest superiority of *direct billing* as cited previously by the AMA House of Delegates, and the protection it offers both the patient and the physician against undesirable interference from third parties."

—Refused to adopt, but instead referred to the Council on Medical Service a resolution which opposed wide differences in fees for equivalent services rendered by equally qualified physicians in different parts of a state, and which directed that this be forwarded to the Department of HEW and to appropriate members of Congress. The SCMA delegation spoke strongly in support of this resolution.

—Recommended simple filing (without approval) of a report of the Board of Trustees in regard to removing legal restrictions on sexual behavior between consenting adults and directed that the subject be considered as part of the continuing study of homosexuality by the Council on Mental Health and be included as a part of the report on this study. Adopted a report recommending that AMA encourage formal instruction of physicians in Human Sexuality at all three levels of professional education.

—Recognized the importance of chronic alcoholism and urged review by general hospitals of their admission policies for this condition, and also urged insurance company and pre-payment plans to remove unrealistic limitations on the extent of coverage afforded for the treatment of alcoholism, recognizing that alcoholism is an illness.

—Turned down a resolution which asked the House of Delegates to go on record as opposed to an amendment to the Constitution of the United States which would prohibit abortion and instead reaffirmed existing AMA policy in regard to abortion.

—In reference to a previous South Carolina resolution (Annual Meeting 1973) requesting endorsement of a SIECOP publication entitled "Marijuana —a Current Summary," the House adopted a resolution commending SIECOP for its activities but without specifically endorsing the publication mentioned above.

—Adopted a report form the Judicial Council in regard to the definition of *death*, affirming the following statement: "Death shall be determined by the clinical judgment of the physician using the necessary available and currently accepted criteria." Adopted a report from the Judicial Council dealing with "the physician and the dying patient" urging full discussion at all levels of organized medicine of this important problem.

—In regard to the problems envisioned by otolaryngologists and certain others who practice in the field of allergies, the following recommendation as an addition to Report F the Council on Medical Education appeared to satisfy all concerned:

"That the American Board of Allergy and Immunology, a conjoint board of the American Board of Internal Medicine and American Board of Pediatrics, be requested to change its name to The Conjoint Board of Medical and Pediatric Allergy and Immunology."

—Voted to retain the present limitation of three terms of office of three years each for members of the Board of Trustees, rather than shortening this to two terms of three years each. Then, after much discussion, adopted two resolutions providing that all nominees for member-

ship on the AMA Board of Trustees shall run at large, rather than for specific "slots," but taking adequate steps to protect against "bullet" ballots.

—Changed the terms of office of members of Councils of the House of Delegates from two five-year terms to three three-year terms. With reference to nominations for the various Councils of the House of Delegates, directed that widespread publicity be given to AMA members concerning vacancies which occur in the Councils, so that prospective candidates can announce for office. Also directed the Council on Constitution and By-Laws to study and report to the House for its consideration the creation of a nominating committee of the House of Delegates for the purpose of nominating members for election to Councils of the House.

—Heard a detailed report of the progress already made by the search committee for a successor to retiring Executive Vice-President Ernest B. Howard, and turned down a resolution which would have set up a special committee of the House to assist the Board of Trustees in this search and decision.

INTERNS AND RESIDENTS

The Physician's National Housestaff Association and the AMA Interns and Residents business session coalesced at a meeting on Saturday, with the PNHA sweeping the elective offices. Dr. Rex Greene was elected delegate, Dr. Sheldon Hurwitz alternate, and Dr. David Axelrad president. These I and R delegates participated actively in the deliberations of the House throughout the convention. In subsequent action, the House (with the agreement of the I and R representatives) directed that the intern and resident officers elected at the Clinical Convention take office on January 1 of the year immediately following election.

The exhibit which won the Hull Award, prepared by James A. Hogan, M. D., and Donald R. Tourville, PhD., of Livingston, New Jersey, entitled "Immuno-pathology in Internal Medicine," showed how appropriate combinations of immunologic tests offered in the form of panels may aid in a more rapid diagnosis of liver disease, glomerulonephropathies and monoclonal gammopathies. Dr. Tourville explained that the object is to make physicians aware that these are not just research entities but practical tests that can be ordered routinely.

CONVENTION SITE

Before I went to Anaheim there was a distinct question in my mind about the wisdom of holding an AMA convention at the Disneyland Hotel. This was soon dispelled after our arrival. The convention facilities are superb and the hotel service and accommondations excellent. We all agreed that it was an exceptionally fine place to hold a meeting. One delegate from Louisiana, when beginning his discussion of the Reference Committee report on PSRO, commented on the appropriateness of the selection of Disneyland, the Land of Fantasy, if the AMA was about to entertain any belief that it could control the evil effects of PSRO.

The registration for the convention was higher than it had been for the last Clinical Convention in Cincinnati. At the end of Monday, registration stood at 7103, including 2995 physicians, 2952 physicians' guests, 642 industrial exhibitors, 93 medical students, and 78 registered nurses.

S. C. DELEGATION

The South Carolina Delegation consisted of Tom Parker and John Hawk, Delegates, Harrison Peeples and Tucker Weston, Alternate Delegates, and Charles Johnson, Executive Director. We were delighted to have an outstanding group of students and one physician in training from South Carolina attending the meeting. These were Rowena Sobczyk, senior medical student, Ray Burns, senior pharmacy student, Al Jones, junior medical student, Milt Sarlin, junior medical student, Kathy James, allied health student, Jerry Jebailey, first year family practice

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Precautions: As with other thyroid preparations, an overdosage of SYNTHROID (sodium levothyroxine) may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, such as Addison's Disease (chronic adrenocortical insufficiency), Simmonds's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patients with cardiovascular disease; development of chest pains or other aggravations of cardiovascular disease requires a reduction in dosage.

Contraindications: Thyrotoxicosis, acute myocardial infarction. **Side effects:** The effects of SYNTHROID (sodium levothyroxine) therapy are slow in being manifested. Side effects, when they do occur, are secondary to increased rates of body metabolism; sweating, heart palpitations with or without pain, leg cramps, and weight loss. Diarrhea, vomiting, and nervousness have also been observed. Myxedematous patients with heart disease have died from abrupt increases in dosage of thyroid drugs. Careful observation of the patient during the beginning of any thyroid therapy will alert the physician to any untoward effects.



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sage and Administration: The activity of 0.1 mg. SYNTHROID (sodium levothyroxine) BLET is equivalent to approximately one grain roid, U.S.P. Administer SYNTHROID tablets a single daily dose. In hypothyroidism with- t myxedema, the usual initial adult dose is L mg. daily, and may be increased by 0.1 mg. ery 30 days until proper metabolic balance is ained. Clinical evaluation should be made nthly and PBI measurements about every 90 ys. Final maintenance dosage will usually nge from 0.2-0.4 mg. daily. In adult myxedema, rting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).

Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100, 500, and 1000. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, U.S.P., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) **for Injection** may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

1. Braverman, L. E., Ingbar, S. H., and Sterling, K.: Conversion of Thyroxine (T_4) to Triiodothyronine (T_3) in Athyreotic Human Subjects, J. Clin. Invest. 49:855-64, 1970.
2. Surks, M. I., Schadlow, A. R., and Oppenheimer, J. H.: A New Radioimmunoassay for Plasma L-Triiodothyronine: Measurements in Thyroid Disease and in Patients Maintained on Hormonal Replacement. J. Clin. Invest. *51*:3104-13, 1972.

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resident and Carolyn Schrestzmann, junior nursing student at the University of South Carolina. They met with us for breakfast Sunday morning, which provided an opportunity for Dr. Parker and others to explain to them the organization of the AMA, and for us to hear from them their thoughts and ideas about organized medicine. They attended the business as well as the scientific meetings and also joined in the social activities. It was the opinion of all of our delegation that their presence was highly worthwhile.

Your delegation expresses its appreciation to the Association for the privilege of representing it and again wishes to urge all SCMA members attending any AMA Convention to make their presence known to the delegation, so that they may be invited to join in our meetings and other activities.

HAZARD OF ULTRAVIOLET RADIATION

The appearance of erythema on the skin of two infants exposed to fluorescent lights as treatment for hyperbilirubinemia has come to the attention of the Food and Drug Administration. On-site investigation of the incident by personnel of the FDA Bureau of Radiological Health indicated that the clinical determination of erythema was consistent with the measured ultraviolet exposure levels. The occurrence indicates an urgent need to alert physicians and hospitals to the possibility of injury to the exposed infant from certain exposure conditions which may be used in phototherapy.

Hazardous levels of ultraviolet radiation, which are not effective in phototherapy, and extremely intense visible radiations can be present in the output of fluorescent lamps. The agency strongly recommends that any institution, or physician, using phototherapy in the treatment of hyperbilirubinemia immediately take the following precautions:

1. Shield fluorescent lamps with ultraviolet absorbing filter materials made from selected plastics or ultraviolet absorbing glass. If such filtering materials are not presently between the infant and the fluorescent source, they should be installed immediately.
2. The eyes of newborn infants should be protected from the intense visible light from any phototherapy source by means of a suitable opaque blindfold. A simple bandage has been reported to be effective.

Communications should be directed to the Director, Bureau of Radiological Health, Food and Drug Administration, 5600 Fishers Lane, Rockville, Maryland 20852.

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GENERAL PRACTITIONER FAMILY PRACTICE. Contractual arrangements for $40,000 guarantee available on two-year basis for private practice. Seventy bed, new acute care general hospital located in Dillon accredited by Joint Commission. Area population 30,000. Estimated yearly gross $60,000. Four GPs at present. Dillon is the county seat, with a population of 7,000 located in north east section of state. Easy access to Myrtle Beach and other recreational activities. Balanced economy with agriculture and industry. Contact: John A. Braeckel, St. Eugene Community Hospital, Dillon, S. C. 29536.

INTERNIST for partnership in well-established general family practice. Space available in existing building. Estimated yearly gross $60,000. No internist at present, four GPs. Area population 30,000. Dillon is county seat of 7,000 (area population 30,000) located in north east section of state with access to Myrtle Beach. Balanced economy with agriculture and industry. Contact: John A. Braeckel, St. Eugene Community Hospital, Dillon, S. C. 29536.

PEDIATRICIAN with contractual arrangements for $40,000 guarantee available on two-year basis for private practice. Seventy bed new acute care general hospital located in Dillon. Ob-Gyn in practice in Dillon. Arrangements can be made to build, lease, or rent office space. Estimated yearly gross $60,000. Dillon is county seat of 7,000 (area population 30,000) located in north east section of state with easy access to Myrtle Beach. Balanced economy with agriculture and industry. Contact: John A. Braeckel, St. Eugene Community Hospital, Dillon, S. C. 29536.

WANTED — Self Memorial Hospital needs 2 internists, 2 pediatricians, 4 general practitioners. Interested physicians contact W. A. Klauber, M.D., Chairman, Physician Procurement, Self Memorial Hospital, Greenwood, S. C. 29646.

ASSOCIATE DIRECTOR OF MEDEX. Medical University of South Carolina — Immediate opening for innovative and highly motivated physician for the position of associate director of MEDEX in the Department of Family Practice. Send curriculum vitae to Arthur C. Hutson, Jr., M.D. Department of Family Practice, MUSC, Charleston, S. C. 29401.

POSITION WANTED

INTERNIST, board certified desires group practice. Available July, 1974. Reply Box F, SCMA, 1508 Washington Street, Columbia, S. C. 29201

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL TO CHARGE CERTAIN LABORATORY TESTS

Beginning January 1, 1974, fees will be charged for certain examinations performed by the Bureau of Laboratories, S. C. Department of Health and Environmental Control (DHEC). These charges will be made to private physicians, health institutions and organizations, industries and other users of laboratory services provided by DHEC.

It has been found necessary to institute fees for laboratory tests in order to generate funds sufficient for the continuation and expansion of laboratory services to meet the public's needs. The Department of Health and Environmental Control is faced with a constantly increasing demand for services and an appropriation of State funds inadequate to meet these demands. The Bureau of Laboratories performed one million examinations during the fiscal year ending June 30, 1973, which is more than double the number of examinations performed in 1966 and a 23 per cent increase over fiscal year 1972. In addition, the type of examination performed has become more sophisticated, requiring not only more expensive equipment but also more highly trained personnel. Funds currently allocated for the operation of the laboratory are insufficient to meet the increasing needs of the consumer.

The establishment of fees for laboratory services stems from a recommendation in the report of the Governor's Management Review Commission published in January 1972. This Commission, appointed by Governor West shortly after his inauguration, was composed of executives from various South Carolina industries which had donated their services to study the operations of our State government. The objective of this group was to determine if there were any areas where modern business practices might be incorporated to utilize our tax dollar more efficiently.

One recommendation of the Commission was that the former S. C. State Board of Health, now part of DHEC, become more self-supporting. A method suggested for this was to charge a fee of $5.00 for each laboratory examination which was deemed by department officials not to fall strictly in the category of public health services. Recently, the Board of Department of Health and Environmental Control approved the establishment of fees for certain laboratory examinations. These fees will be charged by the Department to everyone who is able to pay or has a third party who can pay for him. Charges will not be made to patient's requiring the department's laboratory services who are unable to pay, who are not charged by the physician, and who are so designated when the bill is received. At the end of each month, the physician will receive a billing for those laboratory examinations which were performed for him at the Bureau of Laboratories. A space will be provided on the monthly statement for him to deduct charges for patients whom he decides are unable to pay. This decision will be left entirely to the physician.

A letter regarding this subject was mailed to all South Carolina physicians on November 28, 1973.

Those examinations for which there will be a charge and the fees for these tests are as follows:

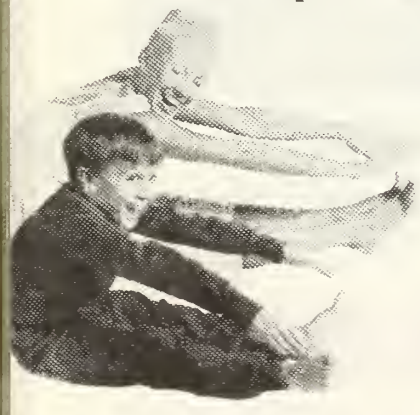
TEST	CHARGE
Serological Test for Syphilis	$ 1.00
Fluorescent Treponemal Antibody	3.00
Rubella Antibody	2.00
Rh Determination	2.00
Febrile Agglutinations	3.00
Infectious Mononucleosis	3.00
Toxoplasma Antibody	3.00
Drug Analysis up to	15.00
Chromosone Analysis up to	100.00

The laboratory fees established are less than the actual cost of providing the services.

"WHEN YOUR BACK FEELS GOOD YOU'LL FEEL GOOD"

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A Unique Back Support System

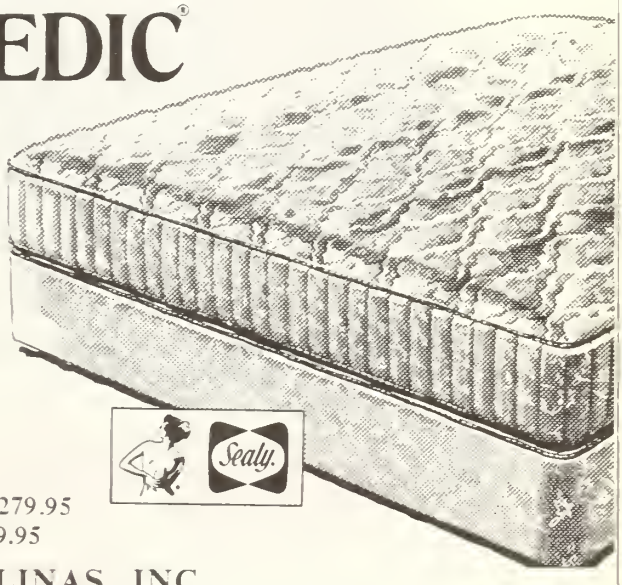


Designed in cooperation with leading orthopedic surgeons for comfortably firm support—"no morning backache from sleeping on a too-soft mattress." And you choose the comfort: Extra Firm or Gently Firm.

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$99.95 Twin size, 2ea. pc.

FULL SIZE, ea. pc. $109.95
QUEEN SIZE 60x80" 2-pc. set $279.95
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SEALY OF THE CAROLINAS, INC.
(a division of the 71-year old Peerless Mattress Co.)

Asheville
Charlotte
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High Point
Greenville, N. C.
Columbia, S. C.

"sleeping on a Sealy is like sleeping on a cloud"



CIBA PRESENTS COMMUNITY SERVICE AWARD TO MEDICAL STUDENT

An award for outstanding community service is presented to Lawrence Sutker (left), second-year medical student, Medical University of South Carolina, Charleston, by CIBA Pharmaceutical Company. The presentation of a set of THE CIBA COLLECTION OF MEDICAL ILLUSTRATIONS by world-renowned medical artist, Frank H. Netter, MD, is made by Robert Moore (right), CIBA Hospital Sales Representative.

This year marks the 25th anniversary of the first volume of THE CIBA COLLECTION OF MEDICAL ILLUSTRATIONS, published by CIBA Pharmaceutical Company. Volumes in the series cover the nervous system, reproductive system, digestive system (in three books), endocrine system and selected metabolic diseases, the heart, and kidney. The volume, *Kidneys Ureters and Urinary Bladder,* sixth and most recent in the series, was published this spring.

From: Medical & Pharmaceutical
Information Bureau, Inc.
210 East 86th Street
New York, New York 10028
(201) 271-5214

Rondomycin®
(methacycline HCl)

CONTRAINDICATIONS: Hypersensitivity to any of the tetracyclines
WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**
Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)
Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.
Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)
All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.
Tetracyclines are present in milk of lactating women taking tetracyclines.
To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia and acidosis.
Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.
PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.
In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.
Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.
In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).
Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.
Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.
ADVERSE REACTIONS: **Gastrointestinal** (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.
Skin: maculopapular and erythematous rashes, exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).
Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).
Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.
Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.
Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.
Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur.
USUAL DOSAGE: **Adults** – 600 mg daily, divided into two or four equally spaced doses. More severe infections: an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, 'Rondomycin' (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.
For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.
Eaton Agent pneumonia: 900 mg daily for six days.
Children – 3 to 6 mg/lb/day divided into two to four equally spaced doses.
Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.
Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.
In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.
In streptococcal infections, a therapeutic dose should be given for at least 10 days.
SUPPLIED: 'Rondomycin' (methacycline HCl): 150 mg and 300 mg capsules; syrup containing 75 mg/5 cc methacycline HCl.

Before prescribing, consult package circular or latest PDR information.

Rev. 6/73

WALLACE PHARMACEUTICALS
CRANBURY, NEW JERSEY 08512



When the focus is on bronchitis due to susceptible strains of *H. influenzae* and pneumococci*

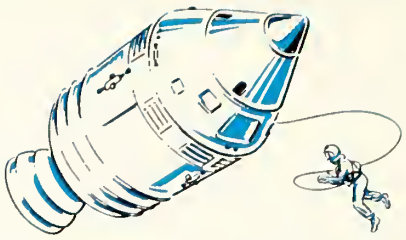
Rondomycin® 300 mg. Capsules

[methacycline HCl]

Delivers from the very first dose:

tudies show that after the first dose serum levels rapidly rise above minimum *in vitro* inhibitory concentrations

*Since many strains are known to be resistant, routine sensitivity testing is recommended.



Man in space, naw foit accompli, re-emphosizes the importance af Ura-Phosphate theropy. Research into the effect of spoce travel on the astronaut reveals that weightlessness causes loss of bone calcium. As the bones ore required ta beor less and less of the weight of the body they lose colcium, increosing the calcium content of the urine. When physicol octivity is reduced, the acidity of the urine should be odjusted ta keep increased calcium in solution . . . . a prophylaxis ta prevent kidney ar blodder calculi.

Uro-Phosphate®

NOW A SUGAR-COATED TABLET

Eoch toblet cantoins: METHENAMINE, *300 mg.;* SODIUM ACID PHOSPHATE, *500 mg.*

Uro-Phosphate gives comfort and protection when inactivity causes discomfort in the urinary function. It keeps calcium in solution, preventing calculi; it maintains clear, acid, sterile urine; it encourages complete voiding and lessens frequency when residual urine is present.

Uro-Phosphate contains sodium acid phosphate, a natural urinary acidifier. This component is fortified with methenamine which is inert until it reaches the acid urinary bladder. In this environment it releases a mild antiseptic keeping the urine sterile.

Uro-Phosphate is safe for continuous use. There are no contra-indications other than acidosis. It can be given in sufficient amount to keep the urine clear, acid and sterile. A heavy sugar coating protects its potency.

Dosage:

For protection of the inactive patient 1 or 2 toblets every 4 ta 6 hours is usually sufficient to keep the urine cleor, acid and sterile.

2 tablets on retiring will keep residual urine acid and sterile, contributing to comfort ond rest.

A clinicol supply will be sent to physicions and hospitals an request.

WILLIAM P. POYTHRESS & COMPANY, INC., RICHMOND, VIRGINIA 23217

Manufacturers of Ethical Pharmaceuticals

LETTER TO THE MEMBERSHIP FROM THE SCMA COUNCIL

RESOLUTION TO THE EXECUTIVE COUNCIL SOUTH CAROLINA MEDICAL ASSOCIATION*

I move that the Executive Council by the authority granted to it under Article 10 of the Constitution "funds may also be raised by voluntary contributions from the Association's publication and in any other manner approved by Council" that Council establish three categories of voluntary membership beside the regular membership.

1. Any member paying at least $50 or less than $100 a year above and beyond the regular and special dues of the society shall be designated as a Contributing Member for that year. Any such member contributing $250 or more total to the Association shall have his name inscribed on a suitable plaque in the permanent home.

2. Any member paying at least $100 a year above the regular and special dues of the Association and less than $200 shall be designated as a Substaining Member of the Association. When his total contribution shall be at least $500 his name shall be inscribed on a suitable plaque in the permanent home.

3. Any member contributing at least $200 a year above the regular and special dues of the Association shall be designated as a Benefactor Member of the Association. When his total contributions reach at least $1000 his name shall be inscribed on a suitable plaque in the permanent home.

*Approved by Council at its December 8, 1973 meeting to accept the resolution submitted by Dr. Donald G. Kilgore regarding voluntary contributions.

SIXTH INTERNATIONAL BIOMATERIALS SYMPOSIUM

April 20-24, 1974
Clemson University
Clemson, South Carolina
"SELECTION OF MATERIALS FOR RECONSTRUCTIVE SURGERY"

SESSION I
Basic Considerations in Materials Selection for Prosthetic Appliances
SESSION II
Properties of Polymethylmethacrylate
SESSION III
Use of Polymethylmethacrylate in Surgery
SESSION IV
Fatigue, Wear, and Corrosion Problems in Implant Design
SESSION V
Biological Application of Textiles
SESSION VI
Medical Silicones
SESSION VII
Ligament and Tendon Prostheses
SESSION VIII
Materials for Plastic and Reconstructive Surgery
SESSION IX
Materials for Orthopedic Prostheses
SESSION X
Materials for Dental Prostheses
SESSION XI
Panel Discussion — Implant Standards: The Specifications Paradox

The symposium is designed to bring together clinicians in orthopedics, oral surgery, plastic and reconstructive surgery with leading researchers in biomaterials, biomechanics, biophysics and experimental surgery. The purpose of the symposium is to assess current progress, to facilitate the recent transfer of research developments into clinical practice, and to promote interaction between the clinicians and researchers as a means for seeking out new directions and approaches to the problem of material selection for implant surgery. The entire symposium will be pre-printed and the proceedings of the symposium will be published.

FIFTH ANNUAL FAMILY PRACTICE REFRESHER COURSE

February 3-9, 1974

(AAFP Credits — 38 hours)

The Fifth Annual Family Practice Refresher Course presented by the Division of Continuing Education of the Medical University of South Carolina will be held February 3 - 9, 1974, at the Mills Hyatt House Hotel, Charleston, South Carolina.

The Faculty of the Medical University of South Carolina and a guest speaker will present a review of the recent advances and application of current practice methods in internal medicine, surgery, pediatrics, neurology, psychiatry, ob/gyn and otolaryngology. Included will be a series of lectures presented by the faculty of the Department of Family Practice dealing with the human relationship area as it affects disease states. There will be evening visits to specialty units of the Medical University Hospital.

Registration is open now through January 21, 1974. Enrollment is limited to 100, and tuition is $140.00 payable in advance on or before Janaury 21, 1974. A block of rooms has been reserved at the Mills Hyatt House at special convention rates. The Social Hour and Banquet on Friday evening is included in this fee. Wives are cordially invited.

A registration desk will be open from 6:30 to 8:30 p.m. Sunday evening, February 3, in the Queen Street entrance lobby of the Mills Hyatt House for the convenience of those participants wishing to complete their registration at that time. Final registration will be at the same place at 8:00 a.m., Monday, February 4.

MEETING — March 15 and 16, 1974

"Tenth Annual E. C. Hamblen Symposium in Reproductive Biology and Family Planning."

by the Department of Obstetrics and Gynecology
Duke University Medical Center
Durham, North Carolina

Registration: $25.00
no charge to residents or students

Inquiries to:
Charles B. Hammond, M.D.
P. O. Box 3143
Duke University Medical Center
Durham, N. C. 27710

NATIONAL HEALTH INSURANCE REPORTS

The evolution of proposed Federal legislation to aid the development of Health Maintenance Organizations has been curious. It may become even more curious.

First proposed by President Nixon in the heat of early debate over national health insurance, he enthusiastically described HMOs this way: "Like doctors in ancient China, they are paid to keep their patients healthy. For them, economic interests work to reinforce professional interests."

But, the charm of HMOs began to diminish for him at about the same time Senator Kennedy specifically added the name "Health Maintenance Organizations" to his Health Security Program.

Now Congress has before it two different HMO proposals—one passed by the House and one passed by the Senate. A compromise of the two will shortly be sent to the President who has been making veto threats.

Meanwhile, hundreds of HMOs have been springing up as the concept has been catching on all over the country. Many health care specialists view the development as the beginning of a quiet revolution of the nation's health delivery system.

No other publication has reported the HMO legislative evolution or the "quiet revolution" as fully and objectively as NATIONAL HEALTH INSURANCE REPORTS — our bi-weekly, in-depth newsletter. You can see for yourself when you read the 2,000-word special Report on HMOs in the enclosed current issue.

And, whenever a health care subject has become news in the past 2½ years, NHI Reports has been on the scene to cover it. As one vitally interested in health care delivery, NHI Reports should be an information link for you. That's its sole purpose . . . to help you interpret, weigh, analyze and evaluate developments in the health care field.

In short, NHI Reports can be your eyes and ears in Washington and around the country on changes occurring or being planned in the delivery and financing of health care . . . in Congress . . . at the Health, Education and Welfare Department . . . in key lobbyists' offices . . . in the White House . . . wherever news develops.

And, our editors know the implications for your organization of changes in existing programs. Thus, we provide in-depth coverage in such areas as manpower, Medicare, Medicaid, grants administration, comprehensive health planning, regional medical programs, Hill-Burton and neighborhood health centers.

The breadth of coverage can best be shown by a look at the headlines from some recent issues of NHI REPORTS:

ADMINISTRATION PUTS OFF INTRODUCTION OF ITS NHI PROPOSAL UNTIL EARLY 1974

HIAC CONSIDERS 7% REVENUE HIKE FOR HOSPITALS UNDER PHASE IV CONTROLS NOW PLANNED FOR JAN. 1

HEALTH LEADER CRITICIZES HEW PLAN AS BURIAL OF PSROs IN BUREAUCRACY

NIXON'S POCKET VETO OF FAMILY PRACTICE BILL IS HELD UNCONSTITUTIONAL BY COURT

HOUSE BOOSTS HEALTH FUNDS BY $1.26 BILLION, STILL FURTHER INCREASES EXPECTED IN SENATE

ALCOHOL, DRUG ABUSE, MENTAL HEALTH PROGRAMS ARE COMBINED BY HEW INTO NEW HEALTH AGENCY

MILLS RIDICULES WEINBERGER'S PLEA FOR IMPORTATION OF FOREIGN DOCTORS

In short: NATIONAL HEALTH INSURANCE REPORTS will provide you with the facts, fast and in full detail.

It's specifically written and edited to keep you ahead of — or at least current with — the developments regarding national health insurance and the fast-changing health delivery and financing scene.

A full year's subscription is just $75. A special get-acquainted subscription of four months is only $30.

Sincerely,
Larry Weekley
Executive Editor

SOUTH CAROLINA AUTHOR PUBLISHED IN SOUTHERN MEDICAL JOURNAL

The following article was published in the December 1973 issue of the Southern Medical Journal.

ESSENTIAL BLEPHAROSPASM

William Henry Coles, M.D., Charleston SC

ABSTRACT: Essential blepharospasm is a severe, progressive bilateral facial spasm affecting older individuals. Its cause is unknown. As the disease becomes severely disabling, a trial of medical therapy (L-dopa) is justified. This often is not successful; if not, the preferred treatment is bilateral differential nerve resection with avulsion of the nerve branches. Although the response to surgical therapy is variable, it is presently the best treatment for the incapacitated patient who fails to respond to medical treatment.

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Before prescribing, please consult complete product information, a summary of which follows:

Indications: Relief of anxiety and tension occurring alone or accompanying various disease states.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limit to smallest effective dosage (initially 10 mg or less per day) to preclude ataxia or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally, making periodic blood counts and liver function tests advisable during protracted therapy.

Usual Daily Dosage: Individualize for maximum beneficial effects. *Oral—Adults:* Mild and moderate anxiety and tension, 5 or 10 mg *t.i.d.* or *q.i.d.*; severe states, 20 or 25 mg *t.i.d.* or *q.i.d. Geriatric patients:* 5 mg *b.i.d.* to *q.i.d.* (See Precautions.)

Supplied: Librium® (chlordiazepoxide HCl) *Capsules*, 5 mg, 10 mg and 25 mg —bottles of 100 and 500; Tel-E-Dose® packages of 1000. Libritabs® (chlordiazepoxide) *Tablets*, 5 mg, 10 mg and 25 mg —bottles of 100 and 500. With respect to clinical activity, capsules and tablets are indistinguishable.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

to help reduce clinically significant anxiety and thereby help improve patient receptivity

Librium® up to 100 mg daily in severe anxiety
(chlordiazepoxide HCl)

Please see following page.



Symptom of excessive anxiety:

The patient may have difficulty in accepting medical counsel.

Clinical experience has shown that some unduly anxious patients may tend to deny or minimize their illness and therefore resist seeking or following medical advice. Through its antianxiety action, adjunctive Librium (chlordiazepoxide HCl) can often calm the emotionally tense patient, thereby encouraging physician-patient rapport and, on occasion, making it easier for the patient to accept medical counsel.

for relief of excessive anxiety

ROCHE **Librium® 10-mg capsules**
(chlordiazepoxide HCl)

Please see reverse side for summary of product information.

Francis A Countway Lib of Medicin
10 Shattuck Street
Boston Massachusetts 02115

THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE

CORONARY ANEURYSM

GENETIC IMMUNOPATHIES

INDICATIONS FOR CORONARY

CARDIOVASCULAR RISK SCREENING FOR LEGISLATORS

X-RAY FILM OF THE MONTH

ALTERATION OF DIET HABITS

MINUTES OF SCMA COUNCIL MEETING

MINUTES OF S. C. MEDICAL CARE FOUNDATION

UME 70 FEBRUARY, 1974 NUMBER 2

Announcing . . .

U-100 Iletin® (Insulin, Lilly)

(100 units of Insulin per cc.)

This is a concentration suitable for most Insulin-dependent diabetics.

U-100 Iletin promises significant patient benefits from standardized, simplified, and convenient Insulin therapy. It is available in six formulations.

Note: A U-100 syringe must be used with U-100 Iletin.



Lilly

Eli Lilly and Company
Indianapolis, Indiana 46206

Leadership in Diabetes Research for Half a Century

300059

Additional information available to the profession on request.



This psychoneurotic often responds

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology; spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

THE FRANCIS A. COUNTWAY
LIBRARY OF MEDICINE
BOSTON
MAR 5 1974

When you determine that the depressive symptoms are associated with or secondary to predominant anxiety in the psychoneurotic patient, consider Valium (diazepam) in addition to reassurance and counseling, for the psychotherapeutic support it provides. As anxiety is relieved, the depressive symptoms referable to it are also often relieved or reduced.

The beneficial effect of Valium is usually pronounced and rapid. Improvement generally becomes evident within a few days, although some patients may require a longer period. Moreover, Valium (diazepam) is generally well tolerated. Side effects most commonly reported are drowsiness, ataxia and fatigue. Caution your patients against engaging in hazardous occupations or driving.

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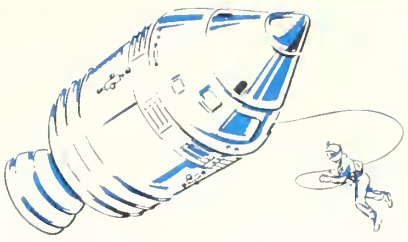
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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association Business office: 1508 Washington Street, Columbia, South Carolina 29201.

Subscription price $6.00 in the U S ($7.00 per year, Foreign) Second Class Postage paid at Columbia, S C and at additional mailing offices

The views expressed in this publication are those of the writers and do not necessarily reflect the opinions of the South Carolina Medical Association

Contributions of Original Articles

Length—Short articles of about 2,500 words (about 8 typewritten pages, double spaced) are preferred Longer articles will defer to the shorter ones in schedule of publication

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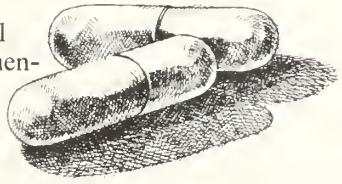
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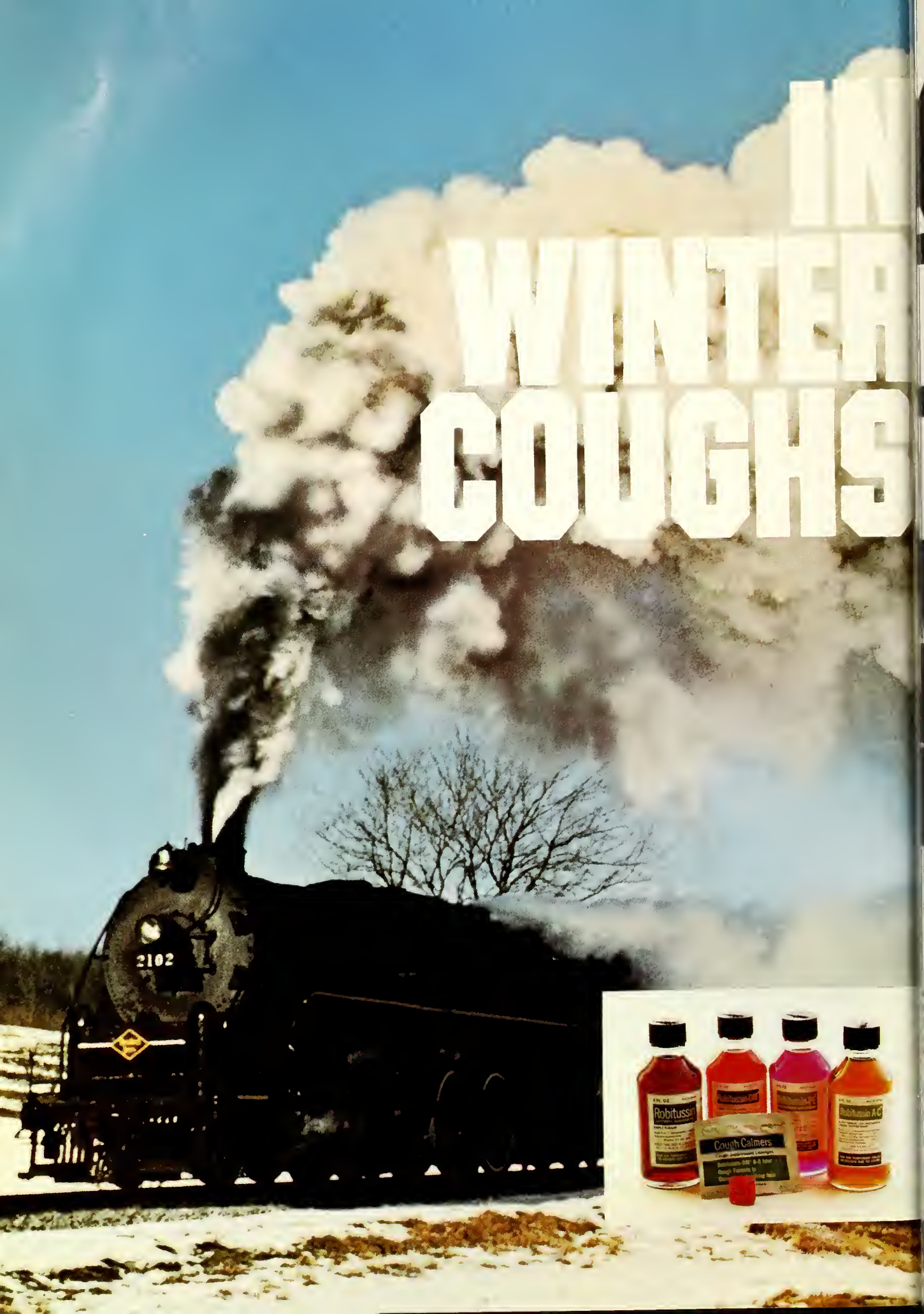
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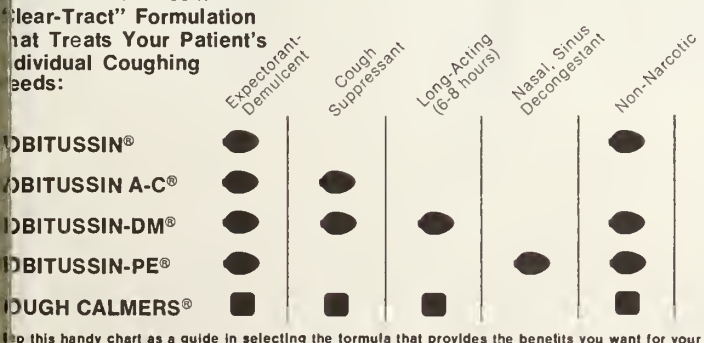
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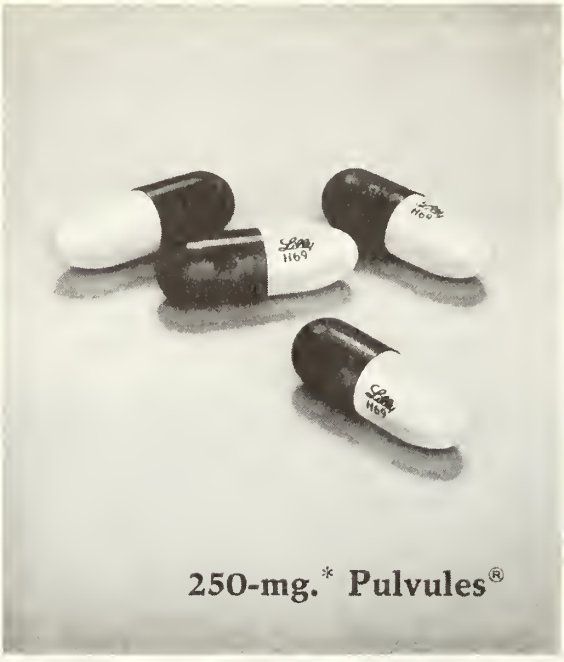
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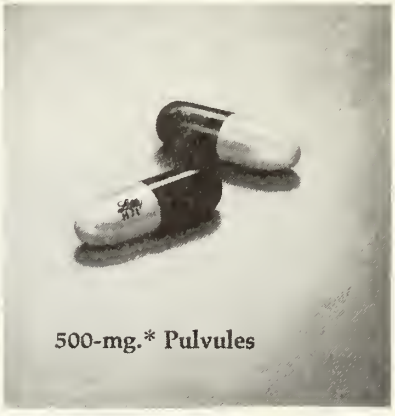
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THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

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CORONARY ANEURYSM: ISOLATED NECROTIZING ANGITIS OF A MAJOR CORONARY ARTERY

REPORT OF A CASE

MICHAEL D. HUGHSON, M.D.*
CHARLES L. GARRETT, M.D.*

Early in this century, many of the recorded coronary aneurysms were thought to be inflammatory in etiology. More recent series have found them to be largely atherosclerotic. Polyarteritis nodosa is a major cause of coronary aneurysm, but it is usually a disease with widespread pathological findings. An inflammatory aneurysm isolated to the heart is a rarity in adults. A ruptured false aneurysm of a major branch of the anterior descending coronary artery was found in a 29 year old practical nurse who died suddenly 2-1/2 months after the onset of rather ill-defined chest pains. The vessel wall was destroyed by an inflammatory reaction rich in eosinophils and plasma cells. No other vascular lesions were found and there was no history of prior antigenic stimulus. Her case was considered to be an unusual manifestation of polyarteritis nodosa.

Aneurysms of the coronary arteries have aroused a measure of interest since first reviewed by Packard and Weschler in 1929.[1] The etiology and pathogenesis of these aneurysms has not always been clear. Scott (1948) reviewed the 39 cases published to that time and found 12 described as mycotic, 6 as leutic, 6 as atheromatous, and 15 as congenital.[2] More recent cases have been less varied in their histopathology. Daoud (1963) added 10 cases to the literature. They were gleaned from a careful dissection of the coronary tree in a routine autopsy series at the Albany Medical Center. They were limited to persons over 16 years of age and represented 1.4 per cent of such autopsies. They were all thought to be atherosclerotic in origin and 8 of the cases were associated with abdominal aneurysms of the aorta. Inflammatory aneurysms were not described in this series.[3]

Polyarteritis nodosa is a major cause of

*Department of Pathology, Medical University of South Carolina.

Reprints may be obtained from: Michael D. Hughson, M.D., Dept. of Pathology, MUSC, 80 Barre St., Charleston, S. C. 29401.

coronary aneurysms. In approximately 70 per cent of the cases, there is involvement of the heart. The coronary arteries are involved at different sites and there are usually necrotizing vascular lesions in the muscular arteries of other organs.

A difficult diagnostic problem arises when the disease is isolated to the heart. Selective vasculitis of the coronary arteries is well documented in children. Benyo and Perrin (1968) reviewed 23 cases. They had similar clinical settings with hospitalization for fever and pharyngitis and frequently a rash developing subsequent to antibiotic or immune serum therapy. A fatal coronary thrombosis or hemopericardium followed an interval of improvement in the patient's presenting illness.[1] There are few cases in the English literature of similar aneurysms in adults. Forbes (1960) found a single aneurysm of the left main coronary artery in a 9-year-old boy who died after the sudden onset of acute abdominal pain. There was no acute inflammation, but the intima of the vessel was described as greatly thickened and the media was thin and fibrotic.[5]

Barrett (1969) reported a case of an isolated dissecting aneurysm of a coronary artery in a 42-year-old woman with a well documented history of allergy. Microscopically, there was a heavy infiltrate of eosinophils and neutrophils in the adventitia with invasion of the media at the site of intramural hemorrhage.[6] Earlier, Ahronheim and Wagman (1959) found a similar lesion in a 41-year-old housewife who had been in good health.[7] Brody (1965) recorded two cases of isolated dissecting aneurysms with a localized adventitial reaction. He did not feel that this pattern of inflammation could have been a factor in the pathogenesis of the dissection.[8]

REPORT OF A CASE

The patient was a 29-year-old Negro practical nurse. Approximately 2 months before she died, she began having a cough productive of small amounts of white sputum. She was seen at a community health clinic on September 9, 1971, when the cough had been present for 2 weeks. Her temperature was 98 F. and blood pressure was 110/80. She complained of left anterior chest pain. Hemoptysis was denied. A chest x-ray was negative. CBC gave the following: hematocrit 32.5, hemoglobin 11.3, WBC's 7100 with 68 polys, 24 lymphs, 3 monos, and 5 eosinophils. Her illness was felt to be a viral upper respiratory infection.

She awoke on the morning of November 12 with generalized itching. At the clinic, some papular lesions were found over her lower legs and arms. They were not painful and went away by the next day. Her temperature was 99 F. Blood pressure was 80/50. She was given Benadryl (Diphenhydramine) and the itching was relieved.

On November 16, she again came to the clinic complaining of chest pains that had become worse in the last two days. They were anterior and aggravated by deep inspiration and bending over. Temperature was 99.4 F. She had no cough. An EKG showed junctional ST Elevation. A chest x-ray was negative. A corrected sedimentation rate was 26 mm per hour. WBC count was 9000 with 66 polys, 24 lymphs, 5 monos, 4 eosinophils, and 1 basophil. This was thought to be a viral pericarditis. No specific therapy was administered.

The pain suddenly became worse the evening of November 17 while the patient was at home. She went to bed where she was found dead the next morning.

In July of 1966, she had been hospitalized with moderately advanced pulmonary tuberculosis. A sputum smear was positive and a sputum culture grew Mycobacterium tuberculosis. She was on triple therapy for two months and continued to take Isoniazied 300 mgm/day and p-Aminosalicylic acid 12 gm/day through her discharge in December, 1966, on an out patient basis until August 9, 1968. On her last visit to the tuberculosis clinic in June, 1971, an x-ray film showed maximal resolution with residual scarring in the right upper lobe that was almost imperceptable.

Careful questioning of her friends and family by one of us (M.D.H.) could not bring out any evidence of illegal or medicinal drug abuse, and there is no documented history of her having received any medications before the onset of her present illness since August of 1968.

AUTOPSY FINDINGS

The pertinent gross findings were in the heart and lungs. There was 350 cc of clotted and liquid blood within the pericardial sac. A saccular bulge 2 cm in diameter overlay the interventricular septum 3.5 cm below the base of the heart. It had a small ragged perforation of its anterior surface. On section, it was found to be cystic and lined by old and recently coagulated blood (Fig.



Figure 1. A false aneurysm is created over the point of destruction of the outer wall of a major branch of the anterior descending coronary artery. A wire is passed through the vessel at the base of the aneurysm.

1). At its base was a large branch of the anterior descending coronary artery. The upper wall of the artery was missing allowing its lumen complete communication with the interior of the aneurysmal cavity. There was no disease in the remainder of the coronary arteries and no evidence of myocardial damage.

The pleural surfaces of the lungs were smooth and without adhesions. Several areas of dense nodular fibrosis were found in the right upper lobe. The largest nodules had a diameter slightly less than 0.5 cm.

A cross section of the aneurysm through the artery at a point where its outer wall was missing showed a relatively normal segment of muscular artery next to the myocardium. Laterally, its ends became frayed (Fig. 2). A dense rim of connective tissue surrounded the entire aneurysm and the intact portion of artery. A short distance from the ends of the destroyed artery wall were sheets of infiltrating neutrophils and eosinophils. They occasionally formed small abscess-like clusters. Special stains for fungi, bacteria, and

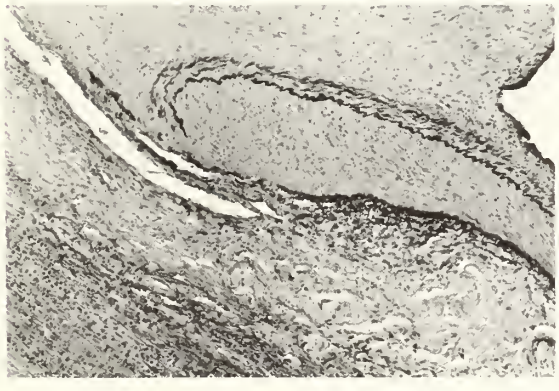


Figure 2. An intact portion of coronary artery lies next to the myocardium. Its wall is destroyed laterally and surrounded by an inflammatory reaction (Verhoeff - Van Gieson x 100).

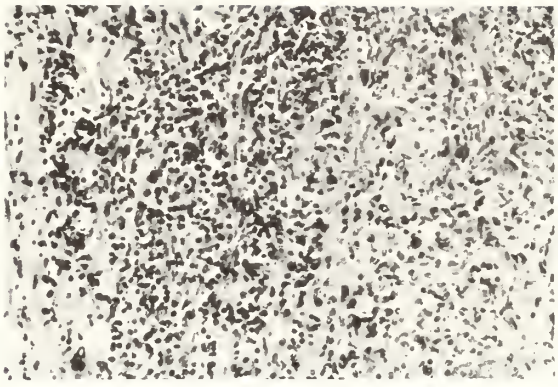


Figure 3. An inflammatory reaction in the wall of the aneurysm contains both acute and chronic inflammatory cells. Large numbers of eosinophils and plasma cells dominate the cellular picture

(Hematoxylin and Eosin x 400).

acid fast organisms with particular attention to these areas were negative. Lymphocytes, histiocytes, and overwhelming numbers of eosinophils and plasma cells were present in the wall of the aneurysm and the adventitia of the artery (Fig. 3). They extended down into the superficial layers of myocardium.

The pulmonary nodules were caseating granulomata. They contained many large giant cells of foreign body and Langhan's type. Fragmented elastic tissue fibers were caught in the granulomatous reaction and were frequently present within giant cells. Organisms were identified in the caseous material by acid fast and auramine-rhodamine flourescent stains.

Meticulous attention to small and medium sized arteries elsewhere revealed no additional signs of vasculitis.

DISCUSSION

This case presents the usual finding of a false coronary aneurysm resulting from a localized necrotizing vasculitis of a major coronary artery. An outstanding feature of the inflammatory picture was a large number of eosinophils and plasma cells. Their presence may point to a hypersensitivity reaction.[9] The isolated nature of the lesion and the lack of other morphological features of hypersensitivity-immunological reactions (macrophage-lymphocyte complexes or granulomas suggestive of rheumatic processes) make a diagnosis of a well-defined category of necrotizing angiitis difficult.[10,11] Large vessels are occasionally attacked in hypersensitivity angiitis, but this disease is

primarily one of small blood vessels. There is no small vessel disease in the present case, and a history of an exposure to an inciting antigen immediately prior to the onset of the patient's initial symptoms cannot be found. The patient developed generalized itching and evanescent skin reaction 5 days before her death; however, the aneurysm had a thick connective tissue wall and its formation would considerably antedate this episode. The affected vessel was of a muscular type like that classically involved in polyarteritis nodosa. Urticaria has been described in the late states of polyarteritis nodosa when there have been no previous symptoms of immediate hypersensitivity. It has been presumed that these persons have become sensitized to some product of the necrosis in the original lesions.[11]

This case also has the coincidence of pulmonary tuberculosis. Symmers & Gillett (1951) published a case involving a 51-year-old man with untreated Silicotuberculosis that died with malignant hypertension and polyarteritis nodosa. They felt that the tuberculosis was not related to his subsequent disease.[12]

SUMMARY

A necrotizing vasculitis isolated to the coronary arteries presents a difficult diagnostic problem. It is not placed easily into any of the better defined categories of necrotizing angiitis. A case is presented of a 29-year-old normotensive practical nurse that died of a ruptured false aneurysm of a coronary artery. The vessel, a major branch of the anterior descending coronary artery, was destroyed by an inflammatory process containing large numbers of eosinophils and plasma cells. No inciting antigen could be found by history and there was an absence of vascular disease elsewhere. Similar diseases have been relatively frequently described in children but are distinctly uncommon in adults. This case was thought to be an unusual, early manifestation of polyarteritis nodosa.

There was an additional finding of pulmonary tuberculosis. It was considered an unassociated and independent disease.

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CARDIOVASCULAR GENETIC IMMUNOPATHIES

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Many cardiovascular problems have an immunologic basis. Rheumatic fever, rheumatoid arthritis, and lupus erythematosus are classic examples of immunologic disorders which often exhibit cardiovascular manifestations.[1]

The relationship becomes more interesting in the light of Burnett's Clonal Selection Theory.[2] Burnett postulated that an individual's immunologic response is largely of genetic origin. He offered evidence that a given person can elaborate a large number of different antibodies because his lymphoid cells came from many different "clones," each able to make antibodies of only one or a few types. He further theorized that each clone of lymphocytes is thought to be preformed by a different gene that has developed in human evolution.

We have had the opportunity to study many cardiovascular patients who were referred to us by physicians in this area. A number of these demonstrated "cardiovascular immunopathies." In reviewing these, we found several who were genetically related, and who form the basis of this report.

The figure shows a pedigree demonstrating the inheritance of some disorders which may be classed as cardiovascular immunopathies.

In G_1, the propositus JB, is said to have had rheumatoid arthritis, an immunopathy which often has cardiovascular manifestations.

His offspring, three males, shown in F_1, were AB, LB, and OB; LB and OB both had cardiovascular disorders. They married sisters, GE and LE, from a nonconsanguineous family.

Five members of the F_2 generation were examined by us and all were found to have immunologic disorders which characteristically have cardiovascular manifestations.

Also we examined one member of the F_3 generation, who had systemic lupus erythematosus.

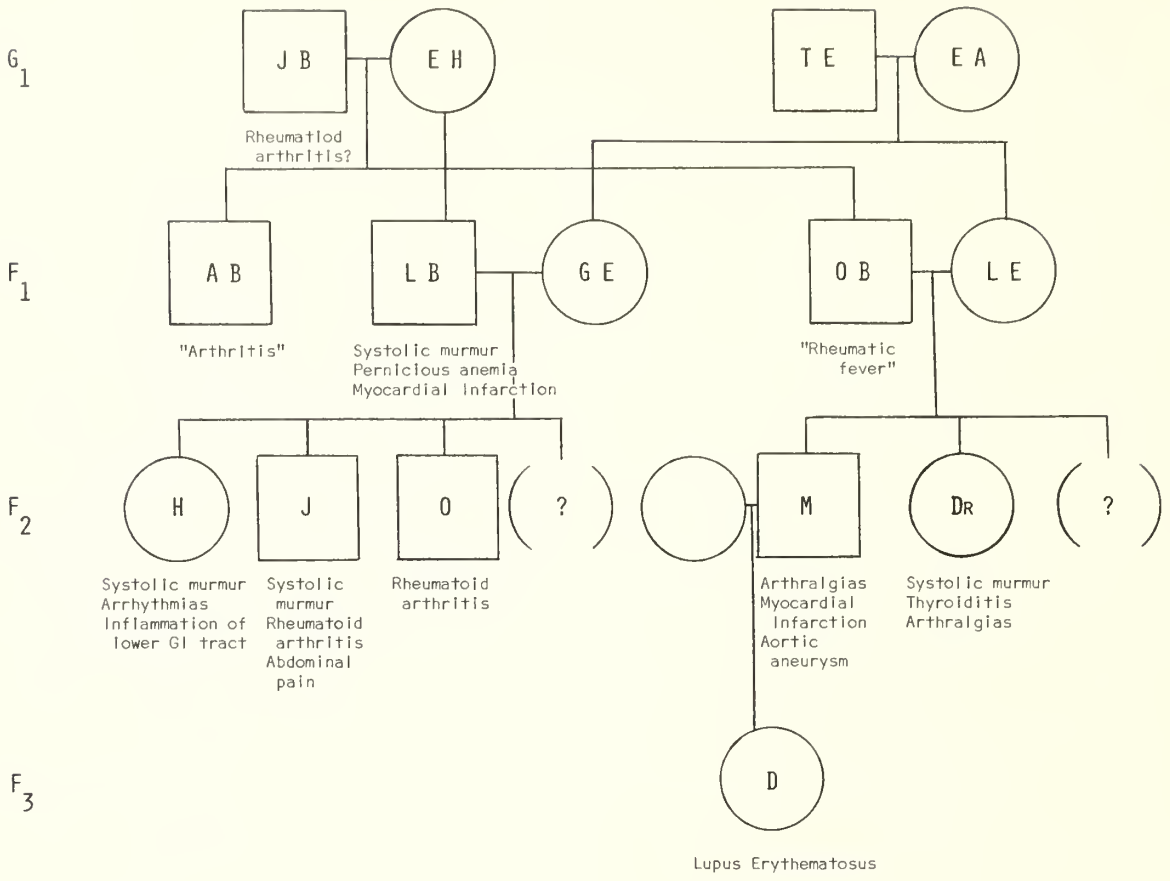
We did not have the opportunity to study these patients immunologically. However, they aroused our interest in certain genetic aspects of cardiovascular immunopathies.

DISCUSSION

The cardiovascular immunopathies include collagen disorders and non-collagen disorders, as pointed out by Harvey.[1] The collagen disorders can be further subdivided into fibrinoid and non-fibrinoid types. The following outline includes observations by Kaplan[3,4], Witham[5], and Terasaki.[6]

I. Collagen Disorders
   A. Those collagen diseases which exhibit deposition of fibrinoid, containing gamma globulin.[1] These

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The author expresses gratitude to the following: Dr. W. N. Cochran, senior partner; Dr. Loren F. Parmley, Jr., Director of Medical Education, Spartanburg General Hospital; and Dr. William Hendrix.



include the following:

1. Rheumatic Fever involves a specific deposition of gamma globulin; it has been shown that antigenic materials from certain strains of streptococci, when injected into rabbits, give rise to antibodies which react with human cardiac myofibrils. Experimental and clinical data indicate that autoimmunity to heart tissue in rheumatic fever may be induced in response to constituents of Group A streptococcal cell walls, antigenically cross-reactive with heart tissue. One of these is a protein called "cross-reactive antigen;" another is a carbohydrate called "C-substance," which contains N-acetyl glucosamine. In five children who died with rheumatic fever, it was shown that the myocardium exhibited bound gamma globulin.[3]
2. Rheumatoid arthritis occasionally affects the heart; the rheumatoid factor involves a 7S gamma globulin plus a 19S macroglobulin.[7] This complex is believed to deposit in tissues and be engulfed by leukocytes. The leukocytes then release lysosomal enzymes which lead to inflammation.[3]
3. Lupus erythematosus involves a multitude of globulin in the serum; these appear to behave as antibodies.[1]
4. Polyarteritis nodosa apparently involves nodular collections of globulins around blood vessels, with complexes involving leukocytes and other structures.

5. Angiitis apparently involves diffuse changes in vessels, again having immunologic components.

B. Non-fibrinoid type collagen disease.
1. Systemic sclerosis is a more diffuse induration of many tissues apparently having immunologic factors.
2. Dermatomyositis involves changes in the skin and muscles.

II. Non-Collagen Immunologic Disorders
A. Myocardosis (a form of cardiomyopathy) sometimes shows gamma globulin bound to heart muscles.[5]
B. Allergic myocarditis is seen especially as a manifestation of serum sickness (tetanus antitoxin) or reactions to sulfa or penicillin (anaphylaxis).[5]
C. Endomyocardial fibrosis is said to have an autoimmunologic diathesis.[4]
D. Sarcoid is possibly a host-reaction pattern involving immunologic mechanisms,[8] producing cor pulmonale, complete heart block, and ventricular tachycardia.[5]
E. Amyloid Heart Disease is thought to involve abnormal immunoglobulins which produce protein-polysaccharide complexes.[7]
F. Recurrent pericarditis may involve antibodies.[4]
G. Homograft rejection is said to involve cellular immunity of the "delayed" type.[6,9]

Immunologic problems usually involve the gamma globulins.[10] These molecules vary in weight from 150,000 to 1,000,000. Each molecule is composed of two large "heavy" chains, and two smaller "light" chains; however, they may appear as polymers.

The gamma globulins are further subdivided into several classes designated by various capital letters. These classes differ in molecular weight, sedimentation coefficients, structure of their "heavy" chains, etc.

At present, at least five classes of gamma globulins have been described.[11,12,13]

(see table)

SUMMARY

Some disorders of the heart and blood vessels may have immunologic etiologies.

Examples include collagen diseases, certain cardiomyopathies, and cardiac transplant problems.

This concept becomes more significant in the light of Burnett's Clonal Selection Theory, suggesting that an individual's globulins are determined by genetic factors.

As an illustration, we have presented a kindred which, to a limited extent, demonstrates what might be called cardiovascular genetic immunopathies.

THE IMMUNOGLOBULINS

	G	D	A	M	E
Mol Wt.	160,000	160,000	160,000+	900,000	196,000
Sed. Coeff.	6.6S	7S	7S-15S	19S	7.9S
Heavy Chain	Gamma	Delta	Alpha	Mu	
Conc./100 ml.: Range:	800-1680 mgm.	0.3-40 mgm.	140-420 mgm.	50-190 mgm.	
Average:	1200 mgm.	20 mgm.	280 mgm.	120 mgm.	

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INDICATIONS FOR CORONARY ARTERIOGRAPHY AND MYOCARDIAL REVASCULARIZATION PROCEDURES

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Honest differences of opinion exist regarding indications for coronary arteriography and subsequent myocardial revascularization procedures. Most potential candidates for such are hospitalized in a community hospital and must be referred, frequently to another city, in order for the patient to undergo evaluation for a surgical procedure. The primary physician and the community consultant must make the decision regarding referral. The following indicates our feelings regarding who can benefit from such procedures. We feel this represents the consensus at the present time, realizing that some degree of individualization must go into each patient's particular circumstances.

Definite Indications

A. Chronic angina inadequately controlled by maximal medical therapy: Such medical therapy should ideally consist of the following, realizing the ideal cannot always be accomplished in every patient.

1. Optimal weight.
2. No smoking.
3. Avoidance of precipitating factors.
4. Control of associated diseases such as hypertension, hyperlipedemias, and diabetes.
5. Treatment of heart failure.
6. Nitroglycerin and long acting nitrates.
7. Adequate beta-blocker therapy (propranolol in dosages up to 320 mgm/day or until adequate relief of angina or bradycardia of 50/min is present).

B. Unstable (accelerated, pre-infarction) angina: Prinzmetal or variant angina (acute injury pattern on EKG which subsides along with the pain) is included in this group. We feel that patients in this group should undergo coronary arteriography as possible emergency surgical candidates when the diagnosis is made. This diagnosis is made in the following groups:

1. Recent onset of progressive angina.
2. Acceleration of pre-existing stable angina.
3. Angina lasting for 20 minutes or longer.

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4. Angina associated with ST elevation (Prinzmetal).
   Some patients in this group have only coronary artery spasm but all should be studied.
5. Angina associated with life threatening ventricular arrhythmias.

C. Discrete ventricular aneurysms associated with left ventricular failure, ventricular arrhythmias, or peripheral emboli. Obviously, in such cases resection of the ventricular aneurysm as well as aorta-coronary vein grafts would be undertaken.

D. Catastrophic or potentially catastrophic complications of acute myocardial infarction:

1. Cardiogenic shock: Aortic ballon counter-pulsation devices are usually necessary to get such a patient through coronary arteriography and to the operating room in a viable state.
2. Intractable ventricular arrhythmias.
3. Ruptured interventricular septum: Repair of the septum as well as aorto-coronary grafting would be performed.
4. Ruptured papillary muscle or chordae tendinae with acute mitral regurgitation: Mitral valve replacement as well as vein grafts would be undertaken.

Probable Indications

The presence of clinical coronary artery disease in a very young individual, 40 years of age or less, is an indication for coronary arteriography in our opinion. We feel this should be done even if the patient has had an uncomplicated recovery from a myocardial infarction and his angina is definite but not disabling. In the event coronary arteriography shows a highly obstructive proximal lesion without appreciable collaterals we would advise aorta-coronary venous grafting.

Contraindications

A. Acute myocardial infarction: This group carries a very high mortality and results at this time do not justify this mortality. The only patients in this group in whom we would recommend surgery are those with life threatening complications previously described.

B. Left ventricular failure without significant angina in the absence of a resectable ventricular aneurysm: Surgery for the totally akinetic ventricle carries a very high operative mortality with very little to be gained from the procedure.

Each patient must be treated as an individual but hopefully this outline will help the physician on the scene in determining if referral for further evaluation and possible cardiac surgery is indicated.

A PHYSICAL FITNESS AND CARDIOVASCULAR RISK FACTOR SCREENING PROGRAM FOR STATE LEGISLATORS

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INTRODUCTION

The "Epidemic of Heart Disease," as stated by Dr. Paul Dudley White, brought to the attention of both the medical profession and health educator the realization that identification of risk factors for cardiovascular disease states and reasons for being physically fit require a stronger enforcement in this country. In the long run, it is greatly a problem of education of the public regarding better health measures that will ultimately reduce the morbidity and mortality from these problems.

So that the citizenry of South Carolina might take advantage of deciding whether preventative health measures should be incorporated into the health care system, the Governor's Physical Fitness Advisory Council of the State of South Carolina promoted and conducted during the 1973 legislative period a voluntary cardiovascular disease risk factor and physical fitness screening program for the state legislators. The purpose of this project was to demonstrate to this group the techniques of such a program, the type of personnel and cooperative effort required, the equipment necessary to run such a program, and the cost factor involved.

This report wishes to describe the method of testing and the findings in this group of participants and to comment upon the relative ease of performing risk factor screening with current sophistication of techniques.

METHOD

The screening program was sponsored by the Legislative Task Force of the Governor's Physical Fitness Advisory Council of the State of South Carolina. All testing was held at the State Capitol grounds with a patient flow pattern utilizing substations arranged to accommodate the various testing maneuvers as expediently as possible. An open schedule appointment book was arranged at the lobby of the State Capitol Building following announcement to the legislators of the voluntary testing procedure. Of the 170 state legislators, 81 participants filled the scheduled testing times within a two day period. A limited test schedule of six days was based on physician availability in the state-wide community and was carried out on Tuesday, Wednesday, and Thursday of two consecutive weeks. The second

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Project was supported by the Governor's Physical Fitness Advisory Council of the State of South Carolina.

week of the program was proclaimed "Physical Fitness Week" by Governor John C. West during the scheduled testing time.

Testing substations included a sign-in desk as Station I, where the individual checked his appointment time and received his folder with all necessary testing forms and a questionnaire. He then moved to Station II where a blood sample was drawn for a non-fasting cholesterol and blood sugar.

Station III accommodated the individual with a pulmonary function screening for vital capacity and forced vital capacity maneuvers. A brief but pertinent pulmonary history questionnaire was answered at this point. At Station IV the patient undressed and was prepared for a 12-lead electrocardiogram at Station V. At Station VI the individual was questioned for a pertinent cardiovascular history relating to stress testing and briefly examined in regards to the cardiovascular system by the attending physician. This consisted mainly of auscultation of the heart and lungs, a blood pressure reading, evaluation of neck veins and any evidence for cardiac decompensation. The 12-lead electrocardiogram and pulmonary screening data was evaluated at this station. The patient was either cleared or rejected for testing at this point by the physician. At Station VII, the patient had a 3-lead electrode system attached to the thorax using the V_5-inferior right scapula lead to monitor the electrocardiogram by radio telemetry. The Avionics system was utilized for continuous ECG monitoring and treadmill activity.[1,2,3]

In all instances, the Bruce protocol for continuous graded treadmill stress testing was employed so that nomograms for estimating maximum oxygen consumption could be utilized to calculate functional aerobic capacity, MET Units of work and an approximate value of maximum VO_2. It was the decision of the physician in charge of the testing procedure to take the individuals to near maximum heart rate response when deemed advisable so that functional aerobic capacity could be estimated. Some of the testing physicians, however, elected to only utilize the submaximal testing level of 85 per cent predicted maximal heart rate as the end point of testing.

Following cessation of testing, the individual moved to Station VIII, which was a combination dressing area and emergency area. Appropriate emergency cardiac drugs, a comfortable rolling carriage, portable oxygen tanks, intravenous fluids, a battery-powered combination defibrillator-oscilloscope and appropriate respiratory resuscitation equipment was on hand, as well as trained individuals to administer cardiopulmonary resuscitation. Prior arrangements alerted the local ambulance service to testing times.

A single lead electrocardiogram was monitored at rest, during exercise, and post-exercise. A pulse rate meter recorded heart rate. Blood pressure cuff on the right arm was used to record blood pressure by auscultatory means. Electrocardiographic strips were made every minute of exercise, as well as a systolic and diastolic blood pressure recorded by auscultation method. Premature ventricular contractions, ST segment change, and the presence of chest pain were recorded on a work sheet. Following exercise, electrocardiographic strips and further monitoring of the same parameters were carried out at 1, 3, 5, and 7 minutes post-exercise.

The criteria of at least 1.0 mm ST depression lasting more than .08 seconds was the criteria utilized.[4] Except in those instances where ST depression occurred at peak exercise or immediately post-exercise, the criteria of Sheffield was then employed.[5,6,7]

Maximum and 85 per cent of predicted heart rate were calculated prior to testing to use as goals during the testing procedure. The actual maximum heart rate and maximum blood pressure were noted

and the percent of predicted heart rate achieved recorded. From the above data, a modified tension time index was plotted. Maximum oxygen intake was estimated from the Bruce nomograms and this converted to MET Units and to functional aerobic capacity. A functional cardiac capacity according to the New York Heart Association's terminology was then estimated.

No individual was given the testing data directly, unless a specific value was deemed important to his immediate health situation. Many individuals were told about their physical fitness level in a percentage figure, but urged to utilize the information for an activity program only after they had consulted their private physicians, following his review of the data.

After the data was summarized and collected for each individual, a summary page with patient values and normal ranges when applicable, copies of the history and physical portion of the testing, and summary of the exercise data were then mailed to each individual's attending physician with a post-card notifying the project participant when the data had been mailed to his physician. It was of interest that all participants had physicians to whom they requested the information sent, though the Council was prepared to recommend physicians from the roster of state licensed physicians.

RESULTS

Of the 81 individuals who signed up for the allotted screening slots, 76 individuals participated on the treadmill. Five individuals were rejected for testing because of relative medical contraindications. This yielded a 94 per cent participation for stress testing. Only one individual refused blood sampling. One hundred per cent of the participants yielded to pulmonary function screening. There were no complications during the entire testing period. Only one individual developed angina and that person did have an unequivocal positive test.

The age range of patients varied from 23 years to 78 years. The average age was 45. The 70 male participants (86.4%) had an average age of 46 years, the 11 female participants (13.6%) had an average age of 39 years.

Of the 76 individuals stress tested, 8 participants failed to complete the test for one reason or another. Six (8.8%) of the 68 tested had unequivocal positive tests. Nine other individuals had equivocal tests for 13.2 per cent. Fifty-three individuals (77.8%) had unequivocal negative tests.

The usual expected blood response during stress testing has been said to not be over 60-100 mm Hg. systolic or 15 mm Hg. diastolic from resting level. Sixty-three of the 76 participants had a response over these values.

Looking at the entire group, the fitness range varied from 30 per cent to 120 per cent. The patient at 30 per cent fitness level reached 100 per cent of his maximum predicted heart rate at very early exercise levels and was judged by the examiner to possibly be in early congestive failure. The individual reaching 120 per cent of predicted reached 98 per cent of maximum predicted heart rate. This fitness range, therefore, would seem to be a true range, since it represents a high and low at maximum predicted heart rate levels. The average fitness range, however, was determined from that group of participants reaching 90 per cent or greater of predicted heart rate response. This fitness range would be considered the more likely "average" for the near maximal or maximal stress group, and was 94 per cent. Sixty-seven per cent or 51 of the participants performed to near maximal or maximal heart rate levels, all without complications or known residual effects.

Sixty-five of the 76 participants or 85.5 per cent performed at 85 per cent greater predicted heart rate activity. Eleven (14.5%) of the 76 participants performed at less than 85 per cent predicted maximum heart rate response.

Twenty-five of the 80 participants allowing blood drawing disclosed a non-fasting cholesterol level above 250 mg per cent — (31.25% of the group). Twenty-one (26.25%) demonstrated a blood sugar elevated above 120 mg per cent non-fasting. Six of the 80 participants or 7.5 per cent had both cholesterol and blood sugar elevated above the values stated above. Seventeen (21.25%) had cholesterol levels between 230-250 mg per cent, which would place them in a borderline elevated category.

Eleven per cent or 9 out of 81 participants had abnormal resting electrocardiograms. Two such individuals had an elevated cholesterol above the accepted normal range, 3 — an elevated blood sugar, 2 — an elevated blood sugar and cholesterol, and 2 had no abnormal finding of the blood sugar or cholesterol as performed at this testing. This would suggest that there is a 78 per cent chance in the evaluated group of having an abnormal cholesterol and blood sugar when the electrocardiogram is abnormal.

The average forced vital capacity for the group of 81 participants was 91 per cent. The range varied form 54-100 per cent. Eighty per cent of the participants had forced vital capacity estimated above 85 per cent of predicted and 68 per cent had a value above 95 per cent of predicted. Of those individuals having positive treadmill tests, the average forced vital capacity was 92 per cent, which is actually slightly better than the overall group average. Of those individuals having inconclusive or suspicious positive tests, the forced vital capacity predicted value was 94 per cent.

The average maximum oxygen intake estimated for the total of 75 tested patients (1 female patient refused to give her age and therefore, the nomograms could not be utilized) was 33 ml O_2/Kg/Min, which averages at 9.2 MET units. Many of these values are not true maximum oxygen uptakes because the individuals did not go to maximal stress levels and this should not be taken as the true average for the group. A more accurate sampling of the maximum oxygen uptake can be estimated for those patients reaching 90 per cent or greater heart rate (50 patients). This value was 34.6 ml O_2/Kg/Min or 9.9 MET units. This value closely approximates the values as stated by Taylor and Mitchell[8,9] for the average sedentary American male. Twenty-five of the 76 patients were stopped at or below 85 per cent maximum heart rate because of physician decision regarding the safety level of testing.

Of the six unequivocal positive treadmill tests compatible with myocardial ischemia, 3 or 50 per cent had a normal resting tracing. The remaining 3 had an abnormal resting tracing. Of those individuals judged to have a suspicious stress test designated as inconclusive with the commentary that repeat testing was indicated, all 9 individuals had a normal resting electrocardiogram. Of the six positive treadmill tested individuals, 2 had abnormal cholesterol elevation and one an abnormal blood sugar elevation. This would suggest that there is a 50 per cent chance when the stress test is positive of having one or the other abnormality elevated in the non-fasting blood. The individuals designated as having an inconclusive or suspicious treadmill test had a 75 per cent chance of turning up with an abnormal cholesterol, blood sugar, or both values being elevated.

Of those individuals with abnormal resting electrocardiograms, 1/3 or 3 patients had negative treadmill exercise tests regarding ST segment changes. These individuals reached levels of 92 per cent, 85 per cent, and 100 per cent of predicted maximal heart rate response. Another 1/3 underwent no testing procedure because of medical contraindications. The remaining 1/3 who had abnormal resting electrocardiograms also had positive stress test findings. Of those individuals having positive treadmill tests (6 patients total), 4 or 66-2/3 per cent

developed positive findings under 90 per cent predicted maximal heart rate level. Of those individuals who had suspicious or inconclusive tests, abnormalities of the ST segment occurred under 90 per cent predicted maximum heart rate activity in 44 per cent of the tested individuals.

DISCUSSION

The enthusiasm with which the screening project was accepted was unexpected. Further arrangements are being made to complete the body of legislators yet untested. The lack of complications speaks of the security with which this type of testing procedure should be carried out. Patient acceptance for testing procedures approached 100 per cent. The educational "spin-off" cannot be tallied at this point.

The cooperative effort of participating groups, including the equipment firms, hospital staff members, physicians from statewide areas, legislative staff, Council and staff, and local manufacturers, speaks to the interest in preventative health screening measures.

The age range of patients in this test group shows the versatility with which stress testing can be performed. The male to female population would be as expected in a legislative body with the middle age group predominating.

The yield of positive stress tests of almost 9 per cent is similar to other[10,11] reported positive findings in "normal" populations. Doan[11] continues to imply that maximal treadmill stress testing is greater than twice as sensitive in disclosing ST segment abnormalities in healthy men, as the double Masters test. If such is true, then the sensitivity of the current testing program would be considered high. The inconclusive or suspicious tests must not be discarded, but should be further evaluated by the attending physician. No attempt was made to call back such individuals for retesting.

Mattingly and others[12,13,14] have commented upon the presence of a normal resting electrocardiogram not ruling out the probability of coronary artery disease. Gorlin[15] commented upon there being a 68 per cent chance of an abnormal pre-exercise ECG associated with a positive exercise test. In this instance, there is a 50 per cent chance of a positive test having a normal resting electrocardiogram which might tend to delude an attending physician and thereby prevent a more specific diagnosis. The higher percentage of normal electrocardiograms for the inconclusive or suspicious tests in this group would suggest that a large number of these will have truly "negative" stress tests. That 50 per cent of the individuals with abnormal stress tests had an elevation of blood cholesterol or blood sugar is no surprise. This again relates to the correlation of these 2 entities with positive exercise stress tests. On the other hand, those inconclusive or suspiciously positive 9 tests disclose a 75 per cent chance of having an elevated cholesterol, blood sugar, or both values. These may, indeed, be the individuals that preventative measures can afford some value to at this time.

It is of no surprise that 1/3 of the individuals with abnormal resting electrocardiograms had negative exercise stress tests. Some of the ECG abnormalities are related to hypertension and might not be expected to reflect coronary artery disease. That 66-2/3 per cent of the individuals with positive treadmill tests had abnormal ST changes under 90 per cent predicted heart rate level, suggests the possibility of advanced disease in these individuals as compared with the group of inconclusive or suspiciously positive individuals who in only 44 per cent of the instances had abnormality of ST segment changes under 90 per cent heart rate activity.

It has been suggested that the criteria for expected blood pressure response is approximately 60-100 mm Hg systolic or 5-10 mm Hg diastolic rise from resting. Anything over this response might be considered an abnormal finding. Since there

was such a large number (63 out of 76 individuals) with a response over this criteria, there may be some need for re-adjustment of our blood pressure response criteria during exercise performance.

The criteria for exercise testing cessation was a blood pressure that elevated over 230 mm Hg systolic or that rose greater than 15 mm Hg diastolic from the resting.

The average fitness level for that group of 51 participants reaching 90 per cent or greater predicted heart rate level was 94 per cent, as predicted for their age group, sex, and mode of activity. The average maximum oxygen uptake as estimated from the Bruce nomograms of 34.6 ml O_2/Kg/Min could be estimated only in this group of 51 participants. This value corresponds closely with the value reported by Taylor and Mitchell.[8,9]

That 67 per cent of the tested individuals were able to reach maximum or near maximum exercise stress levels without complications and without undue precautionary requirements alludes to a possible revision of our philosophy regarding the hazards of near maximum or maximum exercise stress testing. That the screening program was able to subject 85 per cent of the tested individuals to heart rate levels of 85 per cent or greater over predicted for age, again, attests to the applicability of such a screening program producing diagnostic quality testing.

No attempt was made to re-evaluate the cholesterol and blood sugar levels with either fasting specimens, postprandial blood sugar specimens or glucose tolerance determinations. Triglyceride and lipoprotein electrophoresis was not performed. It was felt that the relative inexpense of these simple screening procedures would be enough in themselves to encourage further evaluation. There is no ready explanation for the excessive number of individuals with cholesterol levels and elevated postprandial blood sugar levels in this particular group.

CONCLUSION

The adaptability of cardiovascular risk factor and physical fitness screening to population groups within this State's borders seems to be a reasonable approach of identifying those individuals at an exceptionally high risk of developing ischemic heart disease, but whose coronary atherosclerotic process is still clinically silent. The test is considered relatively safe. The findings are in *agreement with* other population surveys of similar test types.

ACKNOWLEDGEMENTS

This program was made available by equipment donation from Avionics Corporation for stress testing, Middleburg Apothecary for resuscitation equipment, Wren-Fogle Electronics for Mennen Great Bach defibrillator, Richland Memorial Hospital for pulmonary function screening equipment and ECG technicians, Providence Hospital for technician and physician assistance, and the University of South Carolina for technicians.

In addition, the contribution of time and expertise by the following physicians throughout the State made the efforts feasible: Dr. Warren F. Holland, Jr., Dr. Thomas E. Hair, Jr., Dr. N. B. Baroody and Associates, Dr. Joseph R. Dorchak, Dr. Walter J. Roberts, Jr., Dr. Jack Gottlieb, Dr. Patten Watson, Dr. E. C. O'Bryan, Jr., Dr. Jack Padgett.

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X-RAY FILM OF THE MONTH

ARTHUR K. WALTER, M.D.*

Look at the plain chest film, Figure 1, and try to make the diagnosis prior to looking at the angiogram. This patient is a 14-year-old white male admitted with symptoms of upper respiratory infection and diagnosed on admission as having rheumatic fever. He had no past history of heart disease or murmur. He was found to have a Grade IV/VI systolic ejection murmur heard best at the upper left sternal border radiating towards the carotids; heard less well at the lower right sternal base and faintly at the axilla. S1 and S2 were increased and P2 was greater than A2. Later in the admission it was noted that his blood pressure was elevated to 155/90. Femoral pulses were decreased to absent and no blood pressure could be obtained in the lower extremities.

The following x-ray findings are present. Plain chest film shows mild cardiomegaly and normal pulmonary vascularity. The aortic arch is not well seen and a barium meal was not given. There is, however, rather prominent rib notching involving the right fifth-through-eighth ribs and possibly some of the ribs on the left, and the diagnosis of coarctation was suggested. By far the most common cause of rib notching is coarctation of the aorta, which typically causes notching several centimeters lateral to the costovertebral junction on the inferior aspect of ribs



Figure 1.

three-to-nine bilaterally. The notches are caused by erosion by pulsating, dilated arteries. Other causes of rib notching include thrombosis of the abdominal aorta, Blalock-Taussig operation, "pulseless disease," Tetralogy of Fallot, pulmonary atresia (pseudotruncus), Ebstein's malformation, pulmonary valve stenosis, unilateral absence of the pulmonary artery, pulmonary emphysema, superior vena cava obstruction, pulmonary A-V fistula, intercostal artery fistula, intercostal neurinoma, hyperparathyroidism, and idiopathy.

Thoracic aortagram, Figures 2 and 3, was performed by the right axillary ap-

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proach and shows an area of narrowing, which is rather short, just distal to the left subclavian artery. Also note that the ascending aorta is dilated and the left subclavian artery is very large. All of the brachiocephalic vessels are larger than normal for this age group. The internal mammary arteries were large and tortuous. There also may be a bicuspid aortic valve.

Coarctation of the aorta consists of aortic narrowing or occlusion, usually immediately distal to the left subclavian artery but occassionally elsewhere. The following anatomic details are of value for the surgeon to know prior to operation: (1) the length and severity of the stenosis; (2) the distance from the stenosis to the origin of the left subclavian artery and the width of the pre-stenotic segment; (3) the degree of forward displacement of the stenotic area at the level of the ligamentum arteriosum; (4) the appearance of the middle segment of the aortic arch; (5) associated malformations; and (6) information on the collateral vessels. All of the above anatomic features are of decisive importance when the operative technique is being selected. Associated malformations are common and the two most commonly occurring are aortic incompetence and patent ductus arteriosus. Aortic incompetence may be caused by a bicuspid aortic valve. Valvular and subvalvular stenosis may occur in combination with coarctation and can be diagnosed by angiography. Pseudocoarctation of the aorta, an uncommon anomaly similar to coarctation except that significant obstruction is absent, actually represents a kinked aorta with no collaterals and no pressure gradient.



Figure 2.



Figure 3.

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BRIEF COMMUNICATION

Alteration of Diet Habits in Children..

In 1971, a Diet Task Force was established by the South Carolina Heart Association. Members of this task force, in addition to the usual duties of supplying to the physicians of this State materials received from the American Heart Association in regards to diet, set a goal to modify the eating habits of teenagers toward a more suitable diet for prevention of heart disease. In order to reach this goal, several objectives were outlined. Some of these were as follows:

1. The preparation of teaching material to be available in the schools at a small cost and which would be scientifically accurate and interesting.
2. A method of pre- and post-testing in the use of this material to validate as much as possible its effectiveness.
3. Long-term follow-up of certain tested students, hopefully to see if learned skills and changes in diets were retained over a period of years.
4. Attempts were to be made to alter the diets in the school system itself.
5. Effort to involve parents, both for the preparation of their children's food and in the learning process for their health benefit.

A group of interested Heart Association volunteers, including physicians, dietitians, teachers, and psychologists, combined their skills and effort to provide the basic material necessary for the preparation of the teaching unit. The South Carolina Heart Association provided a graduate assistantship at the University of South Carolina for conducting this project, and Steven Sparrow prepared a learning activity package (LAP) under the supervision of Steven N. Blair, P.E.D., of the School of Health and Physical Education at the University of South South Carolina. Pre- and post-tests were prepared by Mr. Sparrow, with the help of the School of Education of the University of South Carolina.

When the LAP had been completed, printed and much source material from the American Heart Association compiled and attached, it was reviewed and approved by the entire task force. Following the approval, a pre-test was given both at the Busbee School and the Caughman Road School in Richland-Lexington County area. Mr. James Ruff undertook to teach all 258 seventh grade students in the science classes of the Busbee School this course of diet and health. The only mateial used for this four-weeks' project was the prepared LAP. After the students had completed this study, post-testing was done again, both at Busbee School and at Caughman Road School. The results of the test showed a highly significant increase in the taught students in their knowledge of the cardiovascular system and heart disease prevention. As an open class format was used, allowing each student to progress at his own level, each student showed great enthusiasm and even petitioned school authorities for a choicé of low cholesterol foods in their lunchrooms. The pre- and post-tests were subjected to computer analysis and were revised as was the LAP. Seventh grade students in Mr. Ruff's class will use the revised LAP this spring. It is planned to follow up the students who took the course last year in an effort to determine if they have modified their diets and have retained the learned health information.

The task force feels that it has accomplished several of its objectives. It has prepared a suitable source of teaching material which is now available at a very low cost to teachers and to other interested persons throughout the State. This has been carefully reviewed, and it is scientifically accurate. The objective of testing this material and its effects is an

ongoing process but so far shows some immediate good results. The objective of involving parents is being pursued further this year through the heart units of the South Carolina Heart Association. Although we were unable, through our own efforts, to specifically modify diets in the schools, it is of interest that the school systems are now allowed, for the first time in many years, to use skim milk and other non-fat products in preparing the foods of the students.

The Diet Task Force wishes the physicians of the State of South Carolina to be aware of the materials available at this time; that it is being continuously upgraded and revised. The learning activity package can be obtained by contacting the South Carolina Heart Association.

Numerous personnel worked in the preparation and for the completion of this project. In addition to those listed above, the members of the Diet Task Force Committee are as follows: C. Warren Irvin, Jr., M. D., chairman; Marion T. Carr, H.S.D.; Mary Agnes Derrick; Inastore Godfrey; Marie Hindman; Ann Josey, Ph.D.; Peter R. Killman, Ph.D.; Ann Musto; Frank E. O'Sheal, M. D.; Mike Dechman, M.P.H.; Beverly Brown; William Postell, M.D.; and Katherine Daniel, Ed.D. Representatives of the South Carolina Heart Association included Jan Simpson, Anita Baker, Morton Rosenberg, and Roger Gaddis.

C. Warren Irvin, Jr., M. D.
January, 1974

COLUMBIA'S PROVIDENCE ACTIVATES IN-DEPTH CARDIOVASCULAR SERVICES

Diagnosis, medical management and surgical correction of cardiovascular disorders will reach a new level of sophistication in South Carolina next month as Providence Hospital, Columbia, activates its highly computerized Cardiovascular Services Department. The Cardiovascular Pavilion, which occupies Providence's third floor, is a major part of a $2.8 million expansion of facilities and services of the hospital which by spring will offer open heart surgical capabilities. The Cardiovascular facilities will be open for personal inspection by members of the state's medical community beginning the last week of February, and the facility will begin receiving patients in March.

Providence's administration and trustees more than two years ago decided to develop the cardiovascular specialty due to the area's growing need for and lack of comprehensive regional facilities. The hospital has since devoted its time to assembling the highly trained staff and equipment for the sophisticated facilities, and conducting an in-depth education program involving in-house and special instruction at the Texas and Arizona Heart Institutes and Stanford University Medical Center.

The first phase of the facility to become operative was the Biographics Division servicing in and out patients. The division provides a stress testing laboratory, vectorcardiography, cardiopulmonary consultation service, electrocardiography, computer-linked pacemaker analysis, and is Midlands Regional Scanning Center for the Holter EKG Monitoring System.

Also operative for the past several months has been the department's Progressive Cardiac Care Unit, equipped with radio telemetry electrocardiographic monitoring. The Respiratory Therapy Department has pulmonary function testing systems offering the spectrum of pre-surgical screening up to detailed diagnostic medical evaluation. The blood gas equipment is the latest computerized model for rapid and quality controlled analysis.

To be activated in March is the Cardiac Catheterization Laboratory, equipped with the Hewlett Packard cardiac catheterization laboratory computer system allowing rapid data analysis, data storage, patient monitoring, and quality control on each patient procedure. The lab will also utilize biplane cut film exchangers and 35 mm cine angiographic Philips X-ray equipment.

Also in operation will be an eight bed Intensive Cardiac Care Unit for monitoring patients during post infarction period, following surgery, and for certain rhythm disturbances requiring pacemaker insertion. The unit is equipped with $40,000 custom designed bedside modular wall units which allow constant heart rate and EKG monitoring by the central nursing station outside the glass enclosed rooms.

Providence's surgical unit in the Cardiovascular Pavilion is expected to begin functioning this spring with two operating suites for the performance of open heart and coronary artery by-pass surgery. The hospital has secured the first Grumman operating room console in the Southeast. This system serves the needs of complex surgery for compact, system-engineered control of the surgical, life support and monitoring equipment. The monitoring console provides for moment by moment evaluation of the patient's EKG, heart rate, body temperature, and arterial and venous pressures, and is equipped for electrical DC defibrillation. At a later date, the monitoring console will be tied into the computerized system to offer trend monitoring.

Providence's Cardiovascular Services Department is under the direction of Dr. Robert G. Kiger, with Dr. John P. Sutton serving as head of cardiovascular surgery. The staff physician who serves as chief of the department is Dr. Warren F. Holland, Jr., with Dr. David Tribble as vice chief. Sister Mary Jacob is hospital administrator for the facility operated by the Sisters of Charity of St. Augustine.

President's Pages



Several years ago when our Peer Review Committee was first created, it was my responsibility to appoint a Chairman. I have never regretted my choice, and today our Vice President and Chairman of the Peer Review Committee, Dr. Mike Patton, is doing an excellent job for S.C.M.A. It is a laborious and frequently thankless job because so many physicians do not understand the full impact of Peer Review. It is here to stay and we are grateful to Mike Patton and his committee for their work and to Mike personally for writing the "President's Page" this month.

"As chairman of the South Carolina Medical Association's committee on Peer Review for the past two or three years, I have perhaps become more familiar with the subject than the average physician. I have learned not to fear it or its cousin, PSRO. Rather, with the risk of being somewhat visionary, I feel that peer review has the potential of great benefit to the medical profession. At the outset, I felt that through peer review the medical profession had its greatest opportunity for really meaningful and organized post-graduate education. Although slow in its beginning, there are encouraging signs that have recently renewed my hope in this regard.

"As an example of peer review in its most effective form, I encourage you to read an article entitled 'Standards for quality care of hypertensive patients in office and hospital practice' published in the September, 1973 issue of the *American Journal of Cardiology*. This article represents the findings and advice of the Committee on Hypertension for the Experimental Medical Care Review Organization of the Albemarle County Medical Society of Charlottesville, Virginia. This is the sort of thing that peer review can do. Not only can it produce the basic criteria but it can also provide the mechanism whereby continual revisions of the criteria would be made and distributed to all physicians. All aspects of medical care would be covered similarly. The point is that these criteria will be developed by physicians chosen by other physicians and would be based solely on considerations of quality of medical care without any intention of restriction.

"Indeed, this seems more peer 'education' than peer 'review.' But the education is the core of the matter. The 'review' is the measurement of its success and the mechanism that assures the patient that he is receiving the benefit of the highest technology.

"Many have responded to the subject of peer review by expressing the feeling that it is an apparently discriminatory activity since no other professions have a similar practice. This perhaps is true. But no other profession is quite like ours. For the past ten years or so, all of us have been concerned with the rapidity of the rate of progress of medical science and technology in the United States. Teachings of one year

may become obsolete the next, and our profession has sought means whereby the latest information of practical value can be transmitted to the practicing physician. The mechanism of peer review probably holds the best promise of accomplishing this goal, and certainly is more appealing than such activities as mandatory post-graduate courses and recertification.

"Completely separate from its educational possibilities, a second service has been asked of the Peer Review Committee. This relates to information concerning fees for professional services.

"We have a tendency to view the health insurance industry as an adversary. Nothing could be further from the truth. The financial responsibility for medical services lies squarely on the patient, it is true. If the patient has seen fit to budget these expenses through the purchase of an insurance policy, that is his business. However, it is of such interest to us that we have established the precedent of assisting the patient in the filing of his claim. More times than not, the claim is assigned to the physician, and we are put in the position of collecting directly from the third party. We complain of the clerical nuisance involved, but we are also aware that there could be a drastic drop in our percentage of collections and even in the demand for our services if it were not for that insurance policy. Like it or not, health insurance is a fact of life and we have a stake in the health insurance industry.

"Essential to the writing of a health insurance policy, or any other insurance policy for that matter, is a reliable estimate of the financial risks involved. In the health insurance industry, physicians' fees represent a significant portion of that risk, and it is vital that the insurance carrier be provided with an accurate estimate of the range of fees to be expected. The health insurance industry has no desire to set these fees or to control them in any way. It merely needs to know what they are, and it has asked your association to advise them on this subject. Working with the Health Insurance Council, we are in the process of accumulating data on physicians' fees. It is expected that by August we shall have information sufficient to calculate the range of fees for all medical services. This information will permit the calculation of the lowest and highest fees as well as any percentile throughout the range. From such information the degree of the liability of the carrier can be readily determined. From all this, we shall work to do away with such terms as usual, customary, and reasonable, and to encourage the use of 'prevailing.' It is possible that this will permit a carrier to design policies for varying degrees of coverage based on the percentile desired by the purchaser. Furthermore, this fee information would remain current and be continuously updated.

"I can see no threat to the freedom of the physician from peer review in any form. At the present time, there is no evidence suggesting nonprofessional interference. We are currently in control and shall remain in control as long as we welcome the concept as a tool that we, the physicians, have devised to assure the American public that they will continue to have the best medical care that can be found in any part of the world."

—Michael F. Patton, M.D.
Vice President, SCMA, and
Chairman, Peer Review Committee

Harold P. Hope, M.D.
President, SCMA

Editorials

A Dual Dedication

This February issue of JSCMA has a dual dedication. In recognition of February as Heart Month, the scientific portion of this issue is devoted to cardiovascular aspects of medicine. This is particularly appropriate because South Carolina has one of the very highest death rates due to cardiovascular causes in the United States.

The second object of dedication for this issue of JSCMA is the great Mid Winter Meeting of the officers of the Association. Much good was accomplished at this first of the annual Mid Winter meetings established by President Harold Hope. We are convinced that organizational activities are of fundamental and increasing importance to all members of SCMA. For this reason we are including the minutes of the Council of SCMA. Also, the minutes of the meeting of the South Carolina Medical Care Foundation are set forth for your consideration.

These two groups will have such a profound influence on our professional lives that their minutes are published in detailed form this month. I commend these items to your attention.

There is one question in my mind. I believe these minutes are of great enough significance to warrant their presentation in their complete form, rather than having some one individual abstract the minutes and condense them to what he thinks is important. The latter method has the obvious appeal of being shorter and easier to read and the obvious disadvantage of being incomplete and somewhat subjective. If you have time to read the unabridged version, that would be better; but if you would not read the whole thing, then the condensed view would be preferable. Please let me know which method would serve you better.

EEK

The Journal of the South Carolina Medical Association

50 YEARS AGO

February, 1924

The Darlington Medical Society passed resolutions condemning the chiropractic bill considered in the Senate. It was announced that because of lack of hotel facilities doctors and their wives would be entertained in the homes of the people of Orangeburg for the Annual Meeting.

MINUTES
of the meeting of
COUNCIL
SOUTH CAROLINA MEDICAL ASSOCIATION
December 8, 1973
Held in the Pagoda Room (D,E,F)
of the Carolina Inn
Columbia, South Carolina

The Council convened with the following members present: Dr. Harold P. Hope, Dr. Donald G. Kilgore, Dr. Michael F. Patton, Dr. D. Strother Pope, Dr. J. Howard Stokes, Dr. Edward E. Kimbrough, Dr. C. Tucker Weston, Dr. A. Richard Johnston, Dr. Waitus O. Tanner, Chairman, Dr. William A. Klauber, Dr. J. Hal Jameson, Dr. Halsted M. Stone, Dr. John D. Gilland, Dr. Michael Holmes, Dr. Randolph Sinoak, Jr., Dr. Thomas Parker, Dr. John C. Hawk and Dr. Harrison L. Peeples.

Others present were: Dr. Kenneth N. Owens, Dr. Edmund Taylor, Dr. Samuel Schumann, Dr. Harry Metropol, Dr. Dexter Rogers, Mr. M. L. Meadors, Mr. Charles Johnson and Miss Laurie Fowler, staff.

ITEM 1. PRESIDENT'S REPORT

Dr. Hope stated that there have been continued repercussions on the Aiken situation and that the Mediation Committee has received a complaint from the Aiken area. The action of the Executive Committee of July has been followed through with. naming Dr. Hope as the spokesman and that no reports have been given to the press without consultation with the Executive Committee. Dr. Hope requested that some permanent method be established on handling press releases. He stated that all releases should be scrutinized by the Executive Committee and then released by the Executive Director.

COUNCIL ACTION: It was moved by Dr. Holmes, seconded by Dr. Stone and unanimously agreed to continue with the present procedure of the President issuing statements for the Association.

Dr. Hope relayed the Woman's Auxiliary's request for projects. He suggested the following: (1) The Woman's Auxiliary to cooperate with our Committee on Membership, Chaired by Dr. Michael Patton of Spartanburg. This committee has met with the Auxiliary's Committee on Membership. (2) Develop an organization to help obtain medical care for newcomers to the community. Mr. Johnson stated that he, along with the Public Relations Committee, have done some work on this project.

Dr. Hope stated that he had inspected the facilities at the Landmark Hotel in Myrtle Beach and that they were adequate for the Association but expressed concern about the Auxiliary's meetings. He stated that he has assured the Auxiliary that they would co-sponsor or help in any way with the seminar they are planning in Columbia on March 6, 1974 on Child Abuse.

Dr. Hope and Mr. Johnson met in Greenwood with Mr. Nesbitt, President of the S. C. Hospital Association. and Mr. Bill Yates, Executive Director. A Liaison Committee meeting of both organizations has been planned for Janaury.

Dr. Hope reported that he had received at least 25 petitions from members of the House of Delegates from at least 10 different counties asking for a "special" meeting of the House to consider two resolutions: (1) dues increase; and (2) the permanent home. This meeting must be held according to our Constitution. A special meeting will be called at 2:00 p.m., December 9, 1973, during the regular House of Delegates meeting. The special session was scheduled for 4:20 p.m., but the Permanent Home Committee report has been moved to 11:15 a.m. and the special session needs to follow the report.

It was also reported that a resolution had been received from the Aiken County Medical Society concerning Dr. Clovis H. Pierce. When the Mediation Committee has made its decision, the Council and the House may want to consider whether to take any action on this resolution or not.

Dr. Hope stated that Mr. M. L. Meadors has been named Counselor of the SCMA. His legal talents should be used as far as possible in all SCMA legal matters including work of the various committees. Consultation may be obtained through the Executive Offices in Columbia.

It was announced by Dr. Hope that Dr. Dexter B. Rogers, Chairman of the Legislative Affairs Committee, was to join the meeting at 2:30 p.m. to request clearance and guidance for an interview that has been set with the Greenville news media on Monday following the conference regarding the abortion situation.

COUNCIL ACTION: It was moved by Dr. Stone, seconded and approved to accept the President's Report as discussed.

ITEM 2. REPORT OF RESULTS OF MAIL BALLOTTING TO COUNCIL MEMBERS REGARDING COLLECTION OF FUNDS THROUGH THE COLUMBIA OFFICE

Mr. Johnson reported results of the mail ballotting as 16 affirmative, no disapprovals, with 3 members of Council without votes.

COUNCIL ACTION: Dr. Stokes moved, Dr. Pope seconded and it was unanimously carried to approve the action of the mail ballotting.

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Indications: Upper respiratory congestion and hypersecretion associated with: the common cold; acute and chronic sinusitis; vasomotor rhinitis; allergic rhinitis (hay fever, "rose fever," etc.).

Contraindications: Hypersensitivity to any component; concurrent MAO inhibitor therapy; severe hypertension; bronchial asthma; coronary artery disease; stenosing peptic ulcer; pyloroduodenal or bladder neck obstruction. Children under 6.

Warnings: Caution patients about activities requiring alertness (e.g., operating vehicles or machinery). Warn patients of possible additive effects with alcohol and other CNS depressants.

Usage in Pregnancy: In pregnancy, nursing mothers and women who might bear children, weigh potential benefits against hazards. Inhibition of lactation may occur.

Effect on PBI Determination and I^{131} Uptake: Isopropamide iodide may alter PBI test results and will suppress I^{131} uptake. Substitute thyroid tests unaffected by exogenous iodides.

Precautions: Use cautiously in persons with cardiovascular disease, glaucoma, prostatic hypertrophy, hyperthyroidism.

Adverse Reactions: Drowsiness, excessive dryness of nose, throat or mouth; nervousness; or insomnia. Also, nausea, vomiting, epigastric distress, diarrhea, rash, dizziness, weakness, chest tightness, angina pain, abdominal pain, irritability, palpitation, headache, incoordination, tremor, dysuria, difficulty in urination, thrombocytopenia, leukopenia, convulsions, hypertension, hypotension, anorexia, constipation, visual disturbances, iodine toxicity (acne, parotitis).

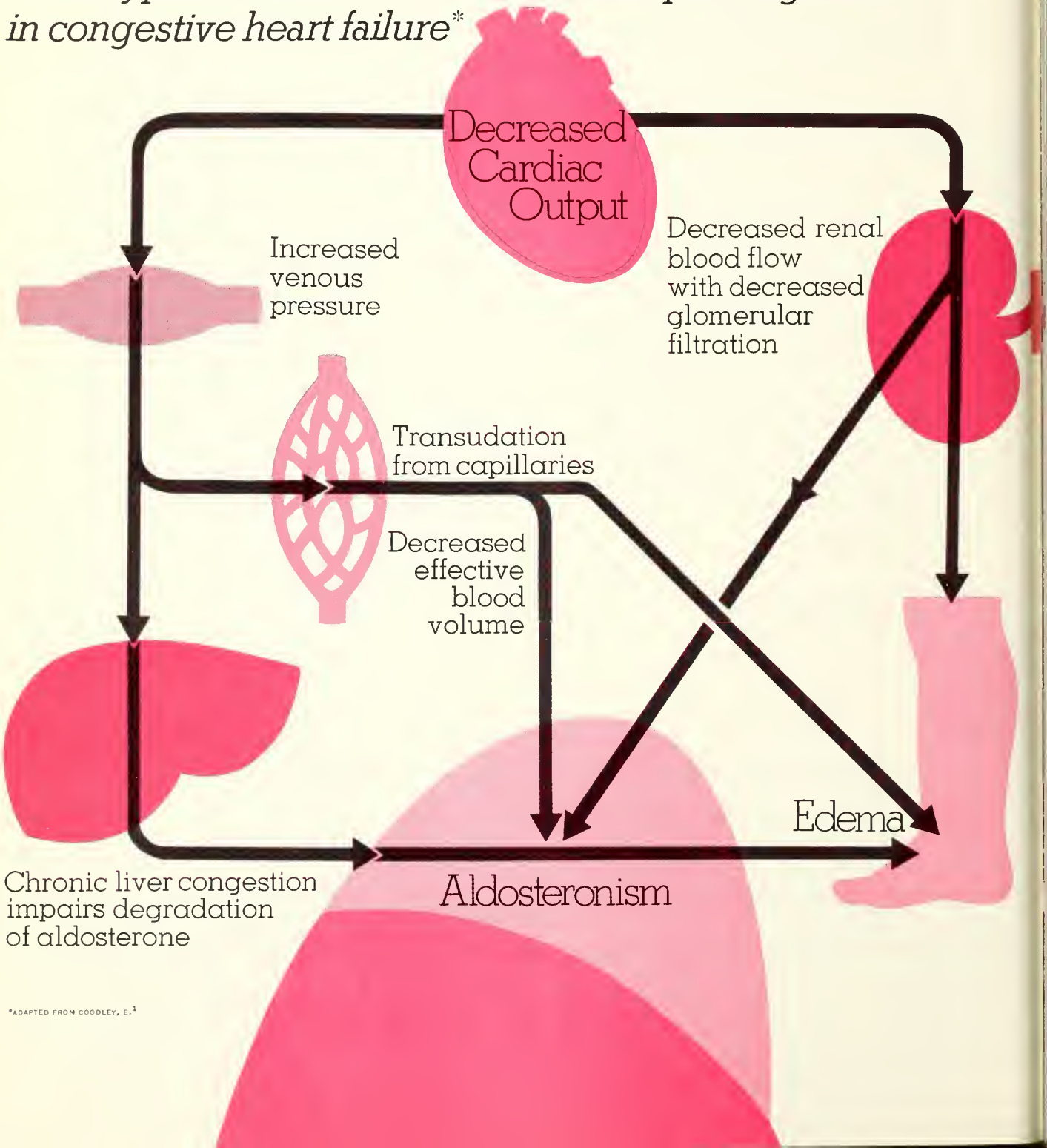
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- Produces gradual, sustained diuresis by blocking aldosterone action in the distal renal tubule.
- Avoids potassium loss.

2. As the basic daily diuretic with an "add-on" alternate-day-diuretic ("A.D.D." schedule)

- Can be administered daily as basic therapy with the additional agent (furosemide or ethacrynic acid) given every second or third day.
- Aldactone plus "A.D.D." schedule minimizes potassium deficiency and potentiates effect of "add-on" diuretic.[2]
- Avoids acute volume depletion and aldosterone rebound.[2]

3. As a daily diuretic in combination with a daily dose of a thiazide

- Permits daily additive diuretic effect while maintaining potassium balance.

Indications—Essential hypertension, edema or ascites of congestive heart failure, cirrhosis of the liver and the nephrotic syndrome; idiopathic edema. Some patients with malignant effusions may benefit from Aldactone (spironolactone), particularly when given with a thiazide diuretic.

Contraindications—Acute renal insufficiency, rapidly progressing impairment of renal function, anuria and hyperkalemia.

Warnings—Potassium supplementation may cause hyperkalemia and is not indicated unless a glucocorticoid is also given. Discontinue potassium supplementation if hyperkalemia develops. **Usage of any drug in women of childbearing age requires that the potential benefits of the drug be weighed against its possible hazards to the mother and fetus.**

Precautions—Patients should be checked carefully since electrolyte imbalance may occur. Although usually insignificant, hyperkalemia may be serious when renal impairment exists; deaths have occurred. Hyponatremia, manifested by dryness of the mouth, thirst, lethargy and drowsiness, together with a low serum sodium may be caused or aggravated, especially when Aldactone is combined with other diuretics. Elevation of BUN may occur, especially when pretreatment hyperazotemia exists. Mild acidosis may occur. Reduce the dosage of other antihypertensive drugs, particularly the ganglionic blocking agents, by at least 50 percent when adding Aldactone since it may potentiate their action.

Adverse Reactions—Drowsiness, lethargy, headache, diarrhea and other gastrointestinal symptoms, maculopapular or erythematous cutaneous eruptions, urticaria, mental confusion, drug fever, ataxia, gynecomastia, inability to achieve or maintain erection, mild androgenic effects, including hirsutism, irregular menses and deepening voice. Adverse reactions are infrequent and usually reversible.

Dosage and Administration—For **essential hypertension** in **adults** the daily dosage is 50 to 100 mg. in divided doses. Aldactone may be combined with a thiazide diuretic if necessary. Continue treatment for two weeks or longer since an adequate response may not occur sooner. Adjust subsequent dosage according to response of patient.

For edema, ascites or **effusions** in **adults** initial daily dosage is 100 mg. in divided doses. Continue medication for at least five days to determine diuretic response, add a thiazide or organic mercurial if adequate diuretic response has not occurred. Aldactone dosage should not be changed when other therapy is added. A daily dosage of Aldactone considerably greater than 75 mg. may be given if necessary.

A glucocorticoid, such as 15 to 20 mg. of prednisone daily, may be desirable for patients with extremely resistant edema which does not respond adequately to Aldactone and a conventional diuretic. Observe the usual precautions applicable to glucocorticoid therapy; supplemental potassium will usually be necessary. Such patients frequently have an associated hyponatremia—restriction of fluid intake to 1 liter per day or administration of mannitol or urea may be necessary (these measures are contraindicated in patients with uremia or severely impaired renal function). Mannitol is contraindicated in patients with congestive heart failure, and urea is contraindicated with a history or signs of hepatic coma unless the patient is receiving antibiotics orally to "sterilize" the gastrointestinal tract.

Glucocorticoids should probably be given first to patients with nephrosis since Aldactone, although useful for diuresis, will not directly affect the basic pathologic process.

For **children** the daily dosage should provide 1.5 mg. of Aldactone per pound of body weight.

References: 1. Goodley, E.: Consultant 12:106-107, 109, 111, 113, 115 (July) 1972. **2.** Thorn, G. W., and Louler, D. P.: Am. J. Med. 53:673-684 (Nov.) 1972

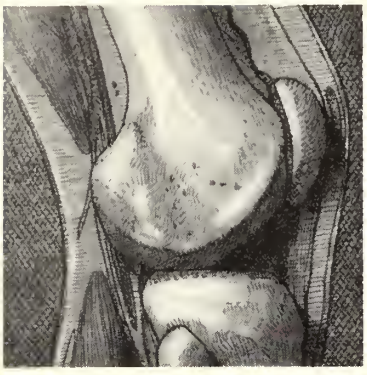
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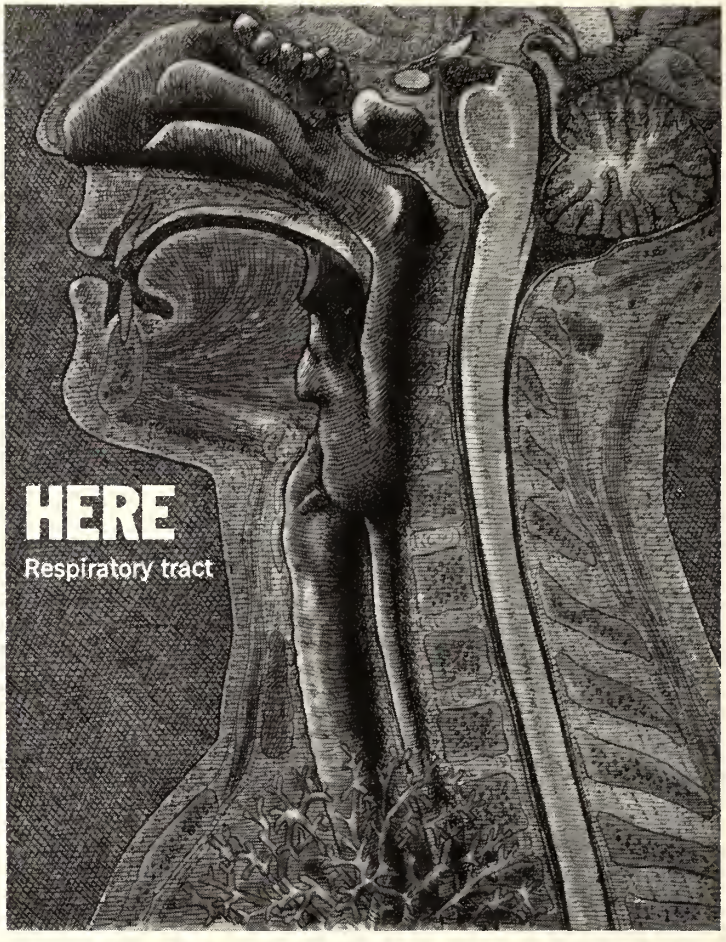
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ACTION REQUIRED: Notify the membership that all billing and receiving is to be through the Columbia office.

ITEM 3. INSURANCE COMMITTEE REPORT

Dr. Harry Metropol, Chairman of the Insurance Committee, reported that after gathering basic information from an insurance survey sent to SCMA members and information submitted to the committee from Metropolitan Insurance Company, Calhoun Insurance Company and Occidental Life Insurance Company, that it was the committee's recommendation that the Council accept the Blue Cross-Blue Shield proposal. A discussion ensued concerning the "Package Plan."

COUNCIL ACTION: On a motion by Dr. Jameson, seconded by Dr. Kilgore and unanimously approved, the Council agreed to accept the Blue Cross-Blue Shield proposal.

Dr. Metropol reported the analysis requested by Council on group programs currently endorsed by the Association recommending changes for updating had not yet been completed, but this information will be forthcoming.

Dr. Metropol reported that the Malpractice Insurance Committee, chaired by Dr. William Fairey, had recommended St. Paul Insurance Company for professional liability coverage for the members of the Association. Dr. Kilgore added that St. Paul is the carrier for most hospitals in the state and accepting St. Paul's proposal would eliminate the problem of different carriers in case of joint suits of hospitals and physicians.

It was noted by Dr. Smoak that the name of the sub-committee was changed from Malpractice Insurance Committee to Professional Liability Insurance Committee.

Dr. Metropol stated that according to Medical Economics, South Carolina ranked second to lowest in malpractice premium rates in the nation. This status must be maintained by good education programs and a close relationship with St. Paul. The Virginia Malpractice Screening Plan presented for evaluation was determined not to be desirable at the present time. No medical-legal plan is necessary at present.

COUNCIL ACTION: On a motion by Dr. Smoak, seconded by Dr. Stone, it was unanimously agreed that St. Paul Insurance Company be accepted for the professional liability coverage.

Dr. Metropol reported that Council's request to develop a minimum insurance standard for health policies sold in the state would be more properly placed with the Legislative Affairs Committee and the South Carolina Medical Care Foundation.

COUNCIL ACTION: It was moved, seconded and passed to refer Council's request to develop a minimum insurance standard for health policies to the Legislative Affairs Committee.

Dr. Metropol introduced Mr. Joe Sullivan, President of Blue Cross-Blue Shield, who stated that there was a good probability of Blue Cross honoring assignments of benefits to non-participating physicians. In return, the physicians would use the revised code and nomenclature similar to the AMA's current procedural terminology using a 4 digit code rather than a 5 digit code. The SCMA would set up an effective Peer Review Committee to determine the reasonableness of fee arbitration.

Mr. Sullivan outlined the general code and nomenclature explaining the importance of proper uniform coding to profile data and the expediency in handling matter economically and the uniform claim form is to be adopted with the target date being July 1, 1974.

Mr. Sullivan explained the problem with the administration of Medicaid stating that because of the change in federal law requiring Medicaid to be paid not more than was paid for Medicare. There is no option.

Dr. Smoak questioned Mr. Sullivan as to the disadvantage of the physician having to code his own claims. Mr. Sullivan explained that it was to the physician's advantage to use proper coding in order to economically and accurately process claims therefore, insuring accurate profiles.

COUNCIL ACTION: On a motion by Dr. Pope, seconded by Dr. Kilgore, it was unanimously agreed to accept the recommendation of the committee to accept Blue Cross-Blue Shield's Professional Service Index compiled by the National Association of Blue Shield Plans.

Mr. Sullivan stated that he hopes that the Council will accept the invitation of Blue Cross to send representation, in a non-official capacity, to the Blue Cross Board meetings to keep abreast and provide input and advice on issues.

COUNCIL ACTION: On a motion by Dr. Gilland, seconded by Dr. Johnston, it was moved to send a representative to attend the Blue Cross-Blue Shield Board meetings, being acceptably amended that the Chairman of Council appoint such representative. A split 6-6 vote was recorded with the Chairman casting an affirmative vote, passing the motion. Drs. Smoak and Pope requested to be recorded as being opposed to the motion.

ITEM 4. REPORT OF THE EDITOR OF THE JOURNAL

Dr. Edward E. Kimbrough, Editor of the Journal, stated that the editorial offices of the Journal have been consolidated in Columbia and the printing was being maintained in Greenville. He stated that he would like to have more interest generated in the submission of articles to the Journal. He also reported that the major problem of the Journal is its financial situation adding that efforts to increase advertising are hampered by national advertising.

It was recommended through discussion that minutes of Council be published in the Journal and perhaps the publishing of the Woman's Auxiliary bulletin, thus extending a service to the Auxiliary. Dr.



Governor John C. West addressed the House of Delegates of the S.C.M.A. at its Mid Winter meeting in Columbia, December 9, 1973. On the podium are, from the left: Waitus Tanner, Chairman of the Council; Harold Hope, President of S.C.M.A.; Governor West; Tucker Weston, Speaker of the House of Delegates; and Vice Speaker of the House, Bill Hunter.

Governor West praised individual doctors for their involvement in South Carolina government and community life, and urged members of the medical profession to take an active and aggressive role in making better health care in South Carolina "a reality in our time."

"Your kind of expertise, ability and leadership is needed in all areas today, and not just in your own profession," the governor told the doctors.

Kimbrough explained that there was an approximate delay of two months in the publishing of such material. A discussion was held regarding the mailing of the Journal to members homes rather than the offices. Dr. Kimbrough is to investigate the possibility of sending the Journal to the requested locations.

COUNCIL ACTION: It was moved, seconded and passed to have the minutes of the Council meetings published in the Journal.

ITEM 5. PUBLIC RELATIONS COMMITTEE REPORT

Dr. Edward E. Kimbrough, Chairman of the Public Relations Committee, agreed that the President should speak in most situations, but provisions should be made in other instances. Dr. Weston noted that the Columbia Medical Society has been represented on WIS-TV's monthly live program and they are expected to appear next month on the impending problem of Medicare and Medicaid.

Dr. Kimbrough stated that proper guidance is needed in order to take advantage of the opportunities available to the Association for news coverage.

Mr. Johnson proposed that the President of the Association should be consulted for guidance for the proper speaker for the proper position should news worthy information be required.

COUNCIL ACTION: It was moved, seconded by Dr. Weston and unanimously approved that the President of the Association be consulted in instances of press interviews and publications.

Dr. Kimbrough reported that the Public Relations Committee recommends the changing of the SCMA logo, perhaps by means of a contest underwritten by a drug house offering a prize for the one selected.

COUNCIL ACTION: On a motion by Dr. Stone, seconded by Dr. Gilland and unanimously carried, it was agreed to change the SCMA logo.

Dr. Kimbrough stated the problem of availability of medical care. The Public Relations Committee recommends:

1. Each county medical society be asked to advise each member to provide adequate, quick coverage when not on duty. It is the responsibility of each physician to answer the necessary calls

of his patient. Solutions will vary for affording 24 hour medical care.

2. Each county medical society is requested to furnish the officers or the Executive Director patient referrals who were unable to get medical service.
3. Each society is asked to make its membership and population aware of these efforts to assure medical availability to all citizens.

COUNCIL ACTION: On a motion by Dr. Kilgore, seconded by Dr. Jameson, it was unanimously agreed to accept the above suggestions from the Public Relations Committee.

ACTION REQUIRED: Advise each county medical society of Council's action on the above suggestions.

Dr. Kimbrough reported that quality of medical care was of great concern and that the availability of a Grievance Committee should be publicized. It was suggested by the Committee that:

1. Each county medical society should amend their Grievance Committee.
2. Insure accessability to the public and make the public aware of the existence of the Committee.

Dr. Kilgore reported that after writing to other medical societies, he found the Arkansas Medical Society had a brochure which is sent to members listing what the medical society does for members and what information is available from the medical society office. It tells new members what they need to do to start their practice (where to get licenses registered, employer social security number, etc.) Dr. Kilgore suggested that the Public Relations Committee work on a brochure for the SCMA as a guide for members.

COUNCIL ACTION: On a motion by Dr. Kilgore, seconded by Dr. Johnston, it was unanimously carried that the Grievance Committee motion be accepted with the amendment of the brochure request.

COUNCIL ACTION: It was moved, seconded and passed to accept Dr. Kimbrough's Public Relations report as presented.

ITEM 6. REPORT OF THE LEGISLATIVE COMMITTEE

Dr. Dexter B. Rogers, Chairman of the Legislative Affairs Committee, joined the meeting giving his report stating his committee was striving to put a non-controversial issue before the House of Delegates to avoid emotionalism of anti-abortion vs. pro-abortion on the floor. Dr. Rogers read the Anderson bill and the proposed changes made by the committee. These changes are:

1. Under Section 2, add a sub-heading. . "A physician performing the abortion must provide adequate follow-up care or be able to present proof that he has made arrangements for follow-up care."
2. Under Section 2, add a sub-heading. . "No physician shall be allowed to perform an abortion who is not qualified to perform the necessary surgical procedures in hospitals licensed by the State Health Department."

   This is specifically directed to out-of-town physicians who are not licensed in the state or physicians who are practicing in the state in government installations from coming into clinics and providing abortion services and not providing follow-up care.
3. Under Section D, Delete. . "who is not an an employee of a hospital clinic or certified by the Department of Health and Environmental Control, who shall in writing state an objection to abortion on moral, ethical or religious grounds.". . .

Dr. Patton questioned the punishment prescribed. Dr. Rogers stated that the 1962 Code Statues on the Abortion Law still hold. (Section 1682-1686) The 1962 Abortion Law stands as it is except with these changes:

1. Abortions can be performed up to 20 weeks on the decision of the doctor and the patient only, however, must be performed in a hospital or clinic licensed by the state, thus taking it out of the physician's office.
2. Any abortion performed after 20 weeks must be performed in a hospital and not a clinic.

COUNCIL ACTION: It was moved by Dr. Patton, seconded by Dr. Smoak and unanimously carried that the Council endorse this law as proposed by the Legislative Affairs Committee and that it be presented to the House of Delegates with Council's approval.

ITEM 7. COMMITTEE ON EMERGENCY MEDICAL CARE

Dr. Edmund Taylor, Chairman of the Committee on Emergency Medical Care, reported on the Health Care Extension Program as presented by Drs. Dantzler and Aycock. The committee's opinion was:

1. The committee agrees that the public needs the extension in medical care programs which will relieve the rural physicians.
2. The committee agrees that the use of the State Board of Health in setting up and administering Health Care Extension Programs. It was stated that the possibility of using private enterprise should be explored.
3. The district concept if sound should be adopted. Regional hospitals should be designated. The bills of medically indigent patients should be sent to the county of the resident or other political divisions.
4. The $5 million the Governor refers to should not be spent by each district in an uncoordinated fashion. An overall planned, coordinated activity is advised (i.e. coordinated communication system for all, not each individual district).
5. The establishment of a state-wide family practice program concerned with planning and management of programs. Coordination is neces-

sary for financing.

6. Screening programs are recommended for medically indigent groups.
   (a) Available funds would be better spent on treatment of acute present illnesses.
   (b) Motivation of patients for follow-up is too low to upgrade health in this group as proven by experiments.

Dr. Stone pointed out that the family practice residents are on a training and educational program and they would not be available to take part in this program because this would put them into the service area rather than the educational. Dr. Taylor again stated that the state family practice program should be intimately concerned with the planning and management of programs within the guidelines established by crediting agencies.

COUNCIL ACTION: It was moved by Dr. Johnston. seconded by Dr. Klauber and unanimously approved to accept Dr. Taylor's report.

Dr. Taylor gave a brief summary of the EMS Committee. It recommended:

1. More data must be compiled before spending money on projects.
2. A communications system of a sophisticated type is essential for coordination of activities throughout the state in emergency medical services.
3. Money and effort should go primarily to the establishment of a good state-wide ambulance service. The secondary consideration was the acquisition of a helicopter service. For this service to be efficient, they should be tied into the South Carolina Law Enforcement Division for joint use.
4. Efforts should be directed to establish regional support and cooperation between counties and regions.
5. Trauma centers (like Richland Memorial Hospital) for regions should be eligible for regional and state support in EMS activities.

Regarding the 1974 Highway Safety Proposals, the committee recommends the following:

1. Proof of place and date of birth
2. Classified licenses, (cars, truck, etc.)
3. Uniform traffic laws from state to state
4. Body restraint system be made compulsory
5. Blood tests be taken from all auto wreck victims within the first 4 hours (used entirely to find out what the alcohol situation is in the state).

COUNCIL ACTION: It was moved by Dr. Klauber, seconded by Dr. Pope and unanimously approved to accept the recommendations of the Emergency Medical Service Committee.

Dr. Taylor listed the scope of his committee and requested it be limited expressly to EMS. He recommended proper committees be formed to handle the responsibilities of the remaining areas of the Medical Services Committee.

Dr. Stone stated he had a statement from the Constitution & Bylaws Committee indicating they had voted to amend Chapter 8 further by inserting a new Section 10 and that will come up at the next House of Delegates meeting in May. It takes the Emergency Medical Services out of the Medical Service section so it will then become a separate committee.

Dr. Taylor requested action on the task forces in the S. C. Health Policy and Planning Council. There is no medical representation on the committee.

Dr. Tanner discussed having a member of the Foundation and the SCMA appointed to this committee.

Dr. Patton requested a study of feasibilty of stockpiling frozen blood at various ponits throughout the state for emergency use. Dr. Taylor stated that he will put that on the agenda for the next committee meeting.

Dr. Harrison L. Peeples stated that the documents received from the State Board of Health and Environment have far reaching implications and opportunities and should receive a detailed study of all elements of organized medicine in the state. Our State Health Officer, in a meeting of last week, found that the state government wanted to have the offices they have all over the state fully utilize the National Health Insurance when it comes into being. If you will notice in the report, there is no limitation on income. There is no set criteria. This puts the State Board of Health in an area beyond public health and puts them in actual medical services. Some policy should be established on delivery of services and written in a form for every practitioner to use as a guide.

COUNCIL ACTION: Dr. Parker moved that the recommendations from the Department of Health and Environmental Control be held in abeyance for further study. This was seconded and passed.

ITEM 8. REPORT OF THE PERMANENT HOME COMMITTEE

Dr. Weston, Chairman of the Permanent Home Committee, reported that 600 members have already paid in advance the special dues assessment yielding $50,000. A lengthy discussion ensued regarding the proposed bond issue and the establishment of a corporation in the name of the South Carolina Medical Building. It was agreed that the members of Council, Executive Committee and the Permanent Home Committee would initially make up the Board of Directors for the new corporation. These members will be issued temporary licenses to sell the bonds. Dr. Weston then called the question. "Should this portion of the building be financed through the bond issue?"

COUNCIL ACTION: It was moved by Dr. Stone, seconded by Dr. Kilgore and passed that the bond issue be accepted to finance the construction of the permanent home.

ACTION REQUIRED: The Permanent Home Committee to advise Mr. Gibbes of Council's

action and begin preparation of the bonds.

Dr. Weston discussed the proposal from the South Carolina Electric & Gas Company for the 10 foot right-of-way. The Permanent Home Committee recommends that they continue to negotiate with SCE&G instead of accepting the recommendations of the Executive Committee to decline the proposal.

COUNCIL ACTION: It was moved by Dr. Klauber, seconded by Dr. Kilgore and unanimously approved to continue negotiations with the South Carolina Electric & Gas Company.

ITEM 9. BUDGET

Mr. Charles Johnson reported on the meeting of the Finance Committee held at 9:00 a.m., Saturday, December 8, 1973.

Dr. Gilland presented a resolution that he deemed necessary to act upon before the discussion of the budget began. The resolution involved the adoption of only balanced budgets.

COUNCIL ACTION: It was moved by Dr. Gilland, duly seconded and unanimously approved that Dr. Gilland's resolution on balanced budgets be approved as amended.

Mr. Johnson presented the proposed budget for 1974 to the Council.

Dr. Tanner reported the availability of office space located above the present Association offices. He stated that this space was needed for future Council and committee meetings. He also stated that when the need for additional staff assistance arose, we would be prepared. This extra office space would house the staff member that would be working with the insurance plan.

COUNCIL ACTION: It was moved, seconded by Dr. Pope and unanimously approved to secure additional office space for meetings and to house the staff member administering the insurance plan.

A discussion was held concerning the payment of half salary for a part-time secretary to administer the insurance plan. This is, of course, contingent upon the participation of Blue Cross-Blue Shield.

COUNCIL ACTION: It was moved, seconded by Dr. Pope and unanimously carried to authorize half salary to be paid for a part-time secretary to administer the insurance plan. This is contingent upon the participation of Blue Cross-Blue Shield.

*PUBLIC RELATIONS

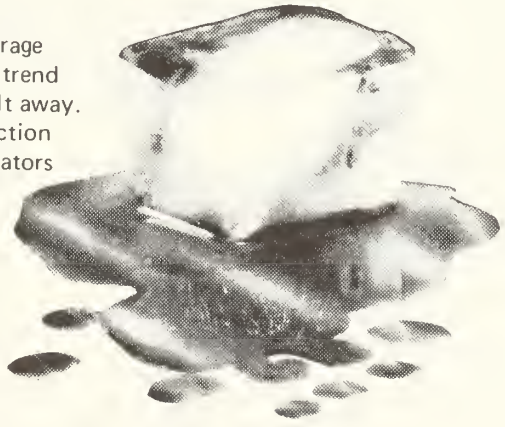
COUNCIL ACTION: On a motion by Dr. Pope, seconded by Dr. Gilland, it was unanimously approved to delete from the budget, the $2,100 that had been appropriated to Dr. Waring.

*LEGISLATIVE SERVICE

COUNCIL ACTION: On a motion by Dr. Stokes, duly seconded and unanimously approved, Mr. Jack Meadors was appointed to represent the Association in the Legislature,

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eliminating the $5,500 that had been allocated for additional legislative service. Mr. Meadors will be compensated at his present salary with additional allowances for expenses. Mr. Meadors was also named Legislative Advocate.

°WOMAN'S AUXILIARY

COUNCIL ACTION: On a motion by Dr. Patton, seconded by Dr. Hawk and Dr. Smoak, it was unanimously approved to allocate $1,000 for the Auxiliary and to offer the Association's services.

°INCREASE ASSOCIATION'S LIABILITY AND CASUALTY COVERAGE

Mr. Johnson reported that this insurance would cover Officers, Delegates and employees when traveling to and from Association meetings and while conducting Association business:

COUNCIL ACTION: On a motion by Dr. Patton, seconded by Dr. Pope, it was unanimously agreed that if affordable, staff is to secure the additional coverage.

°LEGISLATIVE REPORTING SERVICE

COUNCIL ACTION: On a motion by Dr. Pope, seconded by Dr. Kilgore, it was unanimously approved to retain monies for the Legislative Reporting Service in the budget but to place the funds in the Contingency Fund.

°JUST A MOMENT DOCTOR NEWSLETTER

COUNCIL ACTION: On a motion by Dr. Kilgore, seconded and carried, it was agreed to move $750 from Medico-Legal Fund to the Contingency Fund for the newsletter.

°ANNUAL CONVENTION

COUNCIL ACTION: On a motion by Dr. Kilgore, seconded by Dr. Pope, it was unanimously approved to accept any and all monies from exhibitors.

°TELEPHONE & TELEGRAPH SERVICE

COUNCIL ACTION: It was moved by Dr. Patton, seconded by Dr. Pope and carried to bring the telephone and telegraph expense fund back up to $4,000.

°RETIREMENT FUND

COUNCIL ACTION: It was moved, seconded by Dr. Patton and unanimously approved to fund the retirement program if funds become available.

°STAFFING OF SPECIALTY SOCIETIES

COUNCIL ACTION: On a motion by Dr. Hawk, seconded by Dr. Smoak, it was unanimously approved to authorize inquiry of specialty groups to explore the possibility of sharing expenses of the Executive Office of the Association for secretarial service to be utilized part-time.

°PUBLIC RELATIONS

COUNCIL ACTION: It was moved by Dr. Stone, seconded by Dr. Gilland and unanimously approved to re-enter the $2,100 in the budget for expenses for public relations.

°BUILDING FUND

COUNCIL ACTION: It was moved by Dr. Kilgore, seconded and carried to approve the distribution of the Building Program Fund accounting by January 1, 1974.

COUNCIL ACTION: On a motion by Dr. Patton, seconded by Dr. Pope, it was unanimously approved to accept the budget as amended.

ACTION REQUIRED: Submit copies of the Budget to all Councilors with the incorporated amendments.

Dr. Stone recommended that Dr. Daniel Blackwell be asked to serve on the RMP District 6 Regional Advisory Group.

COUNCIL ACTION: On a motion by Dr. Stone, seconded by Dr. Stokes, it was unanimously approved to appoint Dr. Daniel Blackwell to serve on the RMP District 6 Regional Advisory Group.

Dr. Hawk presented an article entitled. "Hot Pursuits" to the Council for recommendations. He stated that this situation was getting out of hand.

COUNCIL ACTION: On a motion by Dr. Patton, it was seconded and carried that the "Hot Pursuits" issue be explored for possible corrective action.

COUNCIL ACTION: Dr. Hawk moved that the "Hot Pursuits" issue be approved in principle. This motion was seconded by Dr. Kilgore and carried.

ITEM 10. REQUEST FOR FUTURE MEETINGS TO BE HELD IN CHARLESTON

The Chairman read a request from Dr. Joseph Waring requesting that the 1975 Annual Meeting be held in Charleston.

COUNCIL ACTION: On a motion by Dr. Patton, seconded by Dr. Klauber, it was unanimously carried to approve investigation for future meetings to be held in Charleston.

ITEM 11. RESOLUTION REGARDING PERMANENT RECORDS OF OFFICIAL SCMA CORRESPONDENCE

A resolution was presented stating that copies of all official SCMA correspondence shall be sent to the Executive Office for the permanent records.

COUNCIL ACTION: It was moved by Dr. Smoak, seconded by Dr. Patton and unanimously carried to send copies of all official proceedings done in the name of the Association to the Executive Offices for the permanent records.

ACTION REQUIRED: Notify all officials of the SCMA of the adoption of this resolution regarding sending copies of all official correspondence to the Executive Office.

ITEM 12. NOMINATION OF DR. HAWK AND DR. WESTON TO AMA COUNCILS

Two letters were presented for the President's signature nominating Dr. John Hawk to the AMA Committee on Constitution & Bylaws and Dr. C. Tucker Weston to the AMPAC Board of Directors.

COUNCIL ACTION: On a motion by Dr. Parker, seconded by Dr. Parker and carried. It was approved to recommend to send the letters to AMA nominating Dr. Hawk and Dr. Weston to AMA positions.

ITEM 13. DONATION OF EQUIPMENT FROM GREENWOOD MILLS

COUNCIL ACTION: On a motion by Dr. Kimbrough, seconded and unanimously approved it was agreed to send a letter of appreciation to the President of Greenwood Mills, Mr. James C. Self, for the contribution of approximately $4,500 for the purchase of equipment to be used for the Doctor of the Day Program.

ITEM 14. RESOLUTION REGARDING ACUPUNCTURE

COUNCIL ACTION: On a motion by Dr. Patton, seconded by Dr. Gilland and unanimously approved, it was decided not to endorse the licensure of an acupuncture or phynotherapy clinic, except when a licensed M.D. is in charge.

ITEM 15. RESOLUTIONS PRESENTED BY DR. GILLAND

Dr. Gilland presented a resolution which would provide better communications between Council and local physicians. It further stated that minutes of Council, Executive Committee and the principal committee shall be forwarded to the office of the Association and then distributed to Council, Presidents of county societies and the Editor of the Journal for publication. Dr. Gilland also requested that the Executive Office entertain more frequent detailed communication to members through various methods.

COUNCIL ACTION: On a motion by Dr. Gilland, seconded by Dr. Pope and unanimously carried it was approved to accept this resolution.

Dr. Gilland then presented another resolution calling for expense vouchers to be used for the payment of expenses.

COUNCIL ACTION: On a motion by Dr. Gilland, seconded by Dr. Stone it was unanimously passed to approve the establishment of expense vouchers to be presented to the Finance Committee for consideration and payment by the Treasurer.

ITEM 16. VICE CHAIRMAN OF COUNCIL TO BECOME MEMBER OF EXECUTIVE COMMITTEE

COUNCIL ACTION: On a motion by Dr. Pope, seconded by Dr. Stone, it was unanimously carried to have the Vice Chairman of Council, Dr. John D. Gilland, become a member of the Executive Committee.

ITEM 17. ANNOUNCEMENT OF THE NEXT COUNCIL MEETING

COUNCIL ACTION: It was moved by Dr. Smoak, seconded by Dr. Kilgore and unanimously approved to leave the date of the next Council meeting to the discretion of the Chairman.

ACTION REQUIRED: Staff to notify Councilors of the next meeting.

MINUTES
of the
SOUTH CAROLINA MEDICAL CARE FOUNDATION
BOARD MEETING
December 9, 1973

Members in attendance were: Dr. Kenneth N. Owens, Chairman, Dr. Waitus O. Tanner, Dr. Halsted M. Stone, Dr. Randolph Smoak, Jr., Dr. J. D. Gilland, and Dr. J. H. Jameson. Also in attendance was Mr. Charles Johnson, SCMA staff.

The meeting was called to order by the Chairman, Dr. Kenneth Owens.

ITEM I. APPROVAL OF NOVEMBER 15 FOUNDATION BOARD MEETING MINUTES

It was noted by Dr. Gilland that the minutes of the Board meeting of the South Carolina Medical Care Foundation on November 15 stated that the RMP grant was $2,000. This is in error; the grant was for $11,500.

ACTION: Minutes approved as amended by Dr. Gilland's notation.

ITEM 2. NAME CHANGE OF THE QUALITY CONTROL COMMITTEE

A discussion was held concerning the change of the name of the Quality Control Committee to the Medical Review Committee.

ACTION: It was moved, seconded, and unanimously passed to change the name of the Quality Control Committee to the Medical Review Committee.

Dr. Owens read a letter from Dr. James Rice, a podiatrist, concerning the inclusion of a podiatrist on the Medical Review Committee.

ACTION: It was agreed to notify Dr. Rice that his request is to be considered and a decision will be made when a council has been created.

ITEM 3. THE PEER REVIEW PROGRAM

Dr. Owens stated that he did not think it ap-

propriate for the Chairman to appoint the Peer Review Committee. He asked the committee to submit names to him for appointment to this committee. Following discussion as to how these members should be nominated, it was agreed that the committee be composed of one member from each of the specialty organizations and three members at-large, the committee to be limited to twenty members.

ACTION: On a motion by Dr. Smoak, seconded by Dr. Gilland, and unanimously passed, it was agreed that the term of office be for a period of one year for the first year, after which time the by-laws will be amended, and names submitted for nomination be offered by the specialty societies within 30 days.

ITEM 4. CHAMPUS

Dr. Owens read a letter from Champus concerning SCMA provision for quality control activity.

ACTION: On a motion by Dr. Tanner, seconded by Dr. Smoak, and passed unanimously, it was agreed to continue discussions between the SCMA and Champus.

ITEM 5. RMP FUNDS

Dr. Owens noted that RMP has $8,800 in uncommitted funds available for use this fiscal year. It was noted that additional office help might be necessary if Foundation business increased, and also help would be needed to administer the Blue Cross-Blue Shield health plan if this is approved by Council. Mr. Johnson suggested that one additional secretary be hired, with one-half of her salary being provided by RMP.

ACTION: On a motion by Dr. Gilland, seconded by Dr. Tanner, and carried unanimously, Mr. Johnson was authorized to proceed with the proposal to share the cost of both personnel and rental space between the Foundation and SCMA.

ITEM 6. GOVERNOR'S ADVISORY COMMITTEE

Mr. Johnson informed the committee that the Governor's Advisory Committee chairman had asked whether SCMA would wish to have a member serve on the S. C. Health Policy and Planning Council. Dr. Owens felt that both the Foundation and the Association should be represented.

ACTION: On a motion by Dr. Stone, seconded by Dr. Tanner, and carried unanimously, it was agreed that Dr. Owens represent the Foundation on this Council.



Governor John C. West, after speaking to the House of Delegates of S.C.M.A., pauses to congratulate Harold Hope for S.C.M.A.'s first Mid Winter Meeting, held in Columbia December 9. The Mid Winter Meeting was conceived and called by Dr. Hope, President of S.C.M.A.

ITEM 7. RMP EQUIPMENT PURCHASES

Mr. Johnson stated that it would be necessary to list equipment purchased with RMP money in the past year so that ownership could be transferred to the Foundation.

ACTION: On a motion by Dr. Gilland, seconded by Dr. Tanner, it was agreed that the necessary papers be completed to effect ownership of the equipment.

ITEM 8. FOUNDATION BANK ACCOUNT

ACTION: It was moved, seconded, and passed to authorize Mr. Johnson to transfer the Foundation bank account from Florence to the Citizens & Southern Bank of Columbia.

CLINICAL CENTER STUDIES OF PATIENTS WITH ANOREXIA NERVOSA

Cooperation of physicians is requested in the referral of patients with anorexia nervosa for a study being conducted by the National Institute of Child Health and Human Development, Reproduction Research Branch at the Clinical Center, National Institutes of Health, Bethesda, Maryland.

Patients will be entered into a double-blind treatment protocol with cyproheptadine with concomitant endocrine evaluation.

Upon completion of the study, patients will be returned to the care of their referring physicians who will receive a summary of the findings.

Physicians interested in having their patients considered for admission may write or telephone:

Dr. D. Lynn Loriaux
National Institute of Child Health and Human Development
Clinical Center, Room 12N206
National Institutes of Health
Bethesda, Maryland 20014
Telephone: (301) 496-5800
or 496-4686

SOUTH CAROLINA MEDICAL ASSOCIATION ANNUAL MEETING

The 1974 meeting will be held May 12 through 15 in Myrtle Beach, South Carolina. All meeting activities will take place in the Landmark Motor Inn. Those attending the meeting are urged to make hotel reservations in advance by communicating directly with the Landmark:

Reservationist
Landmark Motor Inn
1502 South Ocean Blvd.
Myrtle Beach SC 29577

Rates — Single $17.00
Double 22.00

ANNUAL MEETING PRE-REGISTRATION

Name_____

City_____

County Medical Society_____

I plan to attend:

Council luncheon, Sunday, May 12 ____
Council breakfast, Monday, May 13 ____
Tuesday, May 14 ____
Wednesday, May 15 ____
SocPac luncheon, Monday, May 13 ____
Alumni luncheon, Tuesday, May 14 ____
Annual banquet, Tuesday, May 14 ____

Pre-sale of tickets for the SocPac luncheon ($5.00) and the Annual Banquet ($15.00 single, $25.00 couple) is available to Members this year to help simplify the registration process.

Please make your check payable to SCMA and forward it to the Executive Offices. Tickets and badges will be waiting for you at the SCMA Registration Desk at the Landmark Hotel, May 12-15, 1974.

Please check if applicable:
County Society Delegate ____
Alternate ____

Please return this form to:
SCMA Executive Offices
1508 Washington Street
Columbia, S. C. 29201

MEDICAL UNIVERSITY OF SOUTH CAROLINA NEWS

It is predicted that all slots will be filled this year in the growing internship and residency programs of Consortium hospitals in Columbia, Greenville and Spartanburg. These hospitals offer a total of 181 positions.

In receiving the estimate, Dr. William M. McCord, president of the Medical University of South Carolina, termed it as "health news of high significance to South Carolina." Dr. McCord pointed out that residency training programs are considered one of the most effective means of attracting or retaining physicians in a state.

In addition to these 181 positions, the Medical University expects to fill 275 internship and residency slots of its own, bringing the state total to 456, the equivalent of nearly one-fifth of all the physicians currently in practice in South Carolina. The scope of medical education is further broadened with the current training of nearly 650 undergraduate medical students at the Medical University.

The President further noted that whereas a number of states had difficulty in retaining physicians, South Carolina was attracting physicians.

"A significant number of interns and residents are from out of state," he explained. "With graduate programs planned for yet other South Carolina communities, the future of health care in this state is very bright."

The S. C. Medical Education Consortium, in which medical education staffs of cooperating hospitals hold appointments in the College of Medicine, was initiated in July, 1972. At that time 80 of 167 intern and resident positions were filled. A year and a half later, in December, 1973, there were 181 positions of which 130 were filled. In that brief period, the number of positions filled had risen 62 percent.

The current number of applications is ample to fill all positions. The capacity level is expected to be reached in the period March to June.

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WOMAN'S AUXILIARY
TO THE
SOUTH CAROLINA MEDICAL ASSOCIATION

CHILD PROTECTION SEMINAR

The South Carolina Medical Auxiliary has been instrumental in arranging an outstanding program of national speakers for a day-long forum on child protection, Thursday, March 14, in Columbia.

The program will commence with a welcome from South Carolina Governor John C. West. Eli Newberger, M.D., Director of Family Development Study Center at Children's Hospital in Boston, who works with families in an interdisciplinary approach to child protection, will begin the discussions. Following in the program are Vincent de Francis, J.D., of Denver, Colorado, leader of child protection workshops throughout the country; and Mr. Kenneth Rashid, Office of Child Development of HEW, who has information on new laws on child protection and national assistance to local programs. Also attending the seminar will be representatives from the legal, medical, and social work professions to comment on the child abuse situation in South Carolina.

The seminar is open to all persons concerned with the welfare of dependent children: the rights of minor children, their treatment in the state and the nation, and the recourse for those recognizing child abuse. Especially urged to attend and participate are Family Practice physicians and Pediatricians who may serve as discussion leaders and may offer the wisdom of their own experience.

Registration will be Thursday, 9:30 to 10:00 a.m., with a fee of $5.00 for the luncheon. The program will begin at 10:00 a.m. in the Imperial Ballroom; luncheon will be served at noon with the seminar continuing until 4:00 p.m.

CHILD PROTECTION SEMINAR
Carolina Inn
900 Assembly Street
Columbia, S. C.

For further information, please contact:
Mrs. John C. Hawk, Jr.
1 Meeting Street
Charleston, S. C. 29401

Co-sponsors for the program are the South Carolina Medical Association; South Carolina Medical Auxiliary; S. C. Departments of Social Services, Education, Health and Environmental Control, Mental Health, and Mental Retardation; National Association of Social Workers; S. C. Council on Youth; and S. C. Bar Association.

CLASSIFIED ADVERTISEMENTS

PHYSICIAN WANTED

GENERAL PRACTITIONER FAMILY PRACTICE. Contractual arrangements for $40,000 guarantee available on two-year basis for private practice. Seventy bed, new acute care general hospital located in Dillon accredited by Joint Commission Area population 30,000 Estimated yearly gross $60,000 Four GPs at present. Dillon is the county seat, with a population of 7,000 located in north east section of state. Easy access to Myrtle Beach and other recreational activities. Balanced economy with agriculture and industry Contact: John A. Braeckel, St. Eugene Community Hospital, Dillon, S. C. 29536.

INTERNIST for partnership in well-established general family practice. Space available in existing building. Estimated yearly gross $60,000 No internist at present, four GPs Area population 30,000. Dillon is county seat of 7,000 (area population 30,000) located in north east section of state with access to Myrtle Beach. Balanced economy with agriculture and industry. Contact: John A. Braeckel, St Eugene Community Hospital, Dillon, S. C. 29536

PEDIATRICIAN with contractual arrangements for $40,000 guarantee available on two-year basis for private practice Seventy bed new acute care general hospital located in Dillon Ob-Gyn in practice in Dillon. Arrangements can be made to build, lease, or rent office space Estimated yearly gross $60 000 Dillon is county seat of 7,000 (area population 30,000) located in north east section of state with easy access to Myrtle Beach. Balanced economy with agriculture and industry Contact: John A Braeckel, St. Eugene Community Hospital, Dillon, S C. 29536.

WANTED — Self Memorial Hospital needs 2 internists, 2 pediatricians, 4 general practitioners Interested physicians contact W A Klauber, M D., Chairman, Physician Procurement, Self Memorial Hospital, Greenwood, S C 29646

POSITION WANTED

INTERNAL MEDICINE Desires practice in small South Carolina town Available upon completion of military service, July 1975. Please contact: Thomas Kias, M D. 3808 Dunlanwood Circle, Matthews NC 28105

INTERNAL MEDICINE AND NEPHROLOGY Board qualified, completes training July 1974 Interested in supervision or establishment of dialysis unit, private or hospital practice Please contact: Michael D Coleman, M D , 200 Seven Oaks Rd , 26D, Durham NC

INTERNIST — GASTROENTEROLOGIST Age 32, ABIM, university trained Interested in associating with Internal Medicine group Available July 1974 Please contact: B R McCollam, Jr , M D , 3315 Clearfield, San Antonio TX 78230

RADIOLOGIST available Will complete military duty July 1974 Interested in locating in South Carolina University trained, MUSC, in diagnostic radiology, nuclear medicine, radiation therapy. Please contact: Gerald M Chambers, M D , 57 Lucius Dr , DeRidder LA 70634

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CONTRAINDICATIONS: Hypersensitivity to any of the tetracyclines
WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses Enamel hypoplasia has also been reported **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**
Usage in pregnancy. (See above **WARNINGS** about use during tooth development)
Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development) Embryotoxicity has also been noted in animals treated early in pregnancy
Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development)
All tetracyclines form a stable calcium complex in any bone-forming tissue A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued
Tetracyclines are present in milk of lactating women taking tetracyclines
To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug The anti-anabolic action of tetracyclines may increase BUN While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.
Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema
PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy
In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months
Tetracyclines have been shown to depress plasma prothrombin activity, patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.
In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic)
Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.
Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.
ADVERSE REACTIONS: Gastrointestinal (oral and parenteral forms) anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.
Skin: maculopapular and erythematous rashes, exfoliative dermatitis (uncommon) Photosensitivity is discussed above (See **WARNINGS**)
Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**)
Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.
Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued
Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.
Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands, no abnormalities of thyroid function studies are known to occur
USUAL DOSAGE: Adults — 600 mg daily, divided into two or four equally spaced doses. More severe infections an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours Gonorrhea In uncomplicated gonorrhea, when penicillin is contraindicated, Rondomycin® (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule 900 mg initially, followed by 300 mg q i d. for a total of 5 4 grams
For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.
Eaton Agent pneumonia 900 mg daily for six days
Children — 3 to 6 mg/lb/day divided into two to four equally spaced doses
Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.
Concomitant therapy Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated Food and some dairy products also interfere Give drug one hour before or two hours after meals Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding
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The Weight of Professional Opinion

It's time for action to defend the laws and regulations that protect your patients against drug substitution.

These professional and trade organizations are united in supporting antisubstitution statutes and regulations:

The American Academy of Dermatology

The Board of Directors of the American Academy of Family Physicians

The Executive Board of the American Academy of Neurology

The Committee on Drugs of the American Academy of Pediatrics

The American College of Allergists

The Executive Committee of the American College of Obstetricians and Gynecologists

The Board of Regents of the American College of Physicians

The Board of Trustees of the American Dental Association

The Board of Trustees of the American Medical Association

The American Psychiatric Association

The Executive Committee of the National Association of Retail Druggists

The Board of Directors of the Pharmaceutical Manufacturers Association

The National Wholesale Druggists' Association



Joint Statement on Antisubstitution Laws and Regulations

The purpose of this statement is to affirm the support of the participating organizations for the laws, regulations and professional traditions which prohibit the unauthorized substitution of drug products.

Traditionally, physicians, dentists and pharmacists have worked cooperatively to serve the best interests of patients. Productive cooperation has been achieved through mutual respect as well as a common concern for the ideals of public service. This mutual respect has been reflected, in part, by joint support over the years for the adoption and enforcement of laws and regulations specifically prohibiting unauthorized substitution and encouraging joint discussion and selection of the source of supply of drug products. The basic principles of medical, dental and pharmacy practice are thus utilized and preserved in the interest of patient welfare.

The antisubstitution laws have not obstructed enhancement of the professional status of pharmacy any more than they have in and of themselves guaranteed absolute protection from unsafe drugs, or freed physicians, dentists and pharmacists from their responsibilities to patients. As a practical matter, however, such laws and regulations encourage interprofessional communications regarding drug product selection and assure each profession the opportunity to exercise fully its expertise in drug usage, to the advantage of patients.

Physicians and dentists should be urged to increase the frequency and regularity of their contacts with pharmacists in selection of quality drug products, recognizing that economies to patients can be improved through such communication, taking into account the patients' needs. The pharmacist's knowledge of the chemical characteristics of drugs, their mode of action, toxic properties and other characteristics that assist in making drug selection decisions should be utilized to the fullest extent practicable by physicians and dentists in serving their patients.

Since drug product selection entails knowledge derived from clinical experience, the physician's and dentist's roles in product selection remain primary and do not permit delegation of decisions requiring medical and dental judgments. A broader role in therapy will evolve for pharmacists as improved understanding and cooperation among the professions continue to grow.

There has been no evidence that there are convincing reasons to modify or repeal existing laws and regulations prohibiting the unauthorized substitution of another drug product for the one specified by a prescriber. It is our belief that such laws and regulations merit the joint support of the medical, dental and pharmaceutical professions and the pharmaceutical industry.

Add your opinion to the weight of other professionals and send it to your state assemblyman or legislator.

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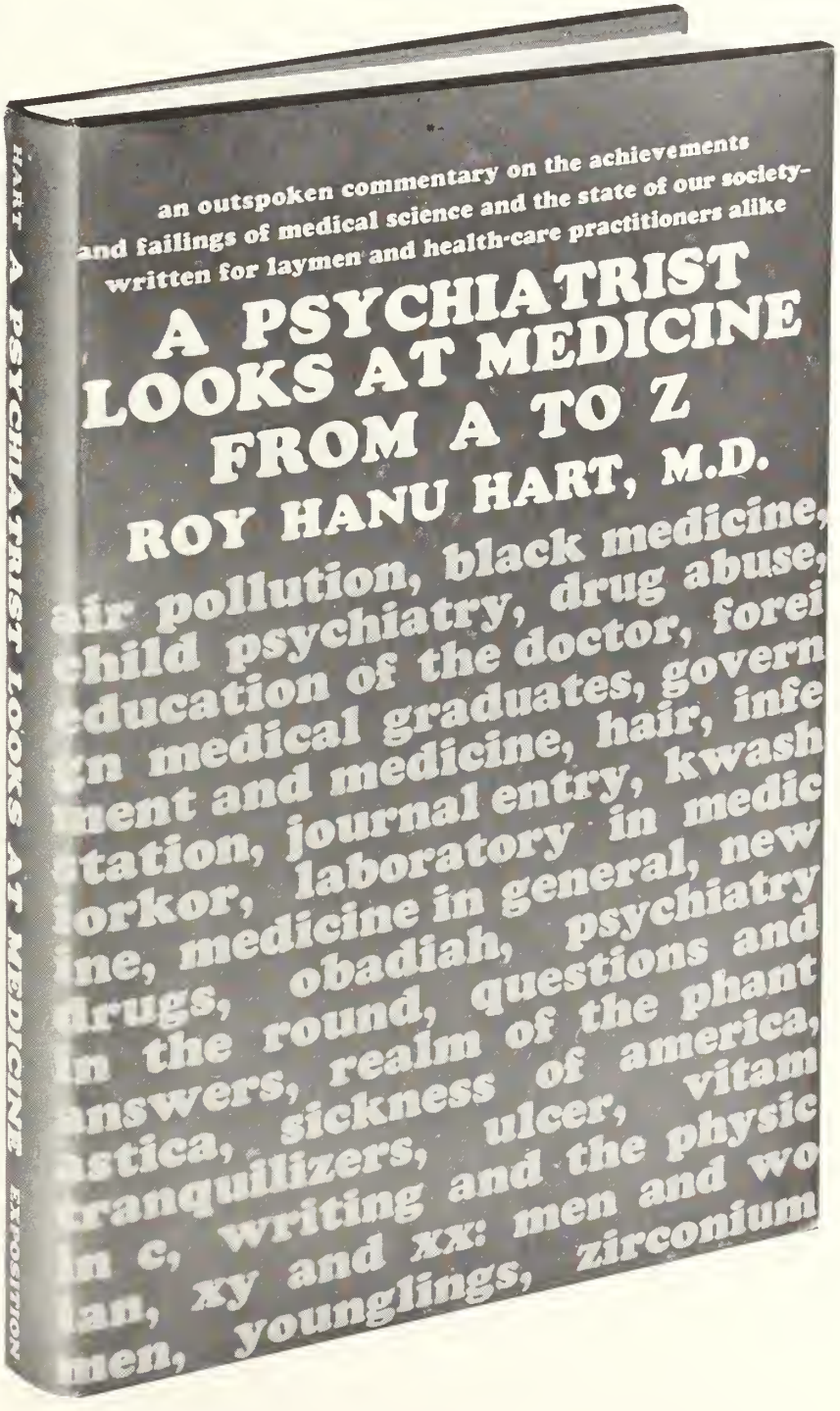
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AMA NEWS

Regulations requiring precertification of elective hospital admissions under Medicare and Medicaid were proposed by HEW and published Jan. 9 in the *Federal Register*. Last spring, at the urging of the AMA and other physician and hospital organizations, HEW withdrew a Bureau of Health Insurance letter to Medicare intermediaries that called for precertification "supportive of the Professional Standards Review Organization effort." When the BHI letter was withdrawn, HEW said it would prepare regulations and publish them so that comment could be obtained.

The regulations would require prior approval by utilization review committees of non-emergency admissions to hospitals and skilled nursing facilities. Review of a patient's need for continued institutional care would also be required, as well as preparation by the physician of a plan for such care. Physicians would also certify and periodically review plans for care in intermediate care facilities under Medicaid. Federal matching funds for institutional care under Medicaid would be reduced by one-third unless the state shows that it has an effective utilization control program in operation.

The AMA is reviewing the regulations. Copies have been sent to all state medical societies. The AMA, on behalf of the state societies, filed a statement of protest against these regulations. Additional comments may be submitted to (for Medicare) Washington Inquiries Section, Office of Public Affairs, Social Security Administration, Room 4146, 300 Independence Ave., Wash. DC 20201; and (for Medicaid) Administrator, Social and Rehabilitation Service, HEW, PO Box 2372, Wash. DC 20013.

PRESCRIBING INFORMATION
Antiminth (pyrantel pamoate) Oral Suspension
Actions. Antiminth (pyrantel pamoate) has demonstrated anthelmintic activity against *Enterobius vermicularis* (pinworm) and *Ascaris lumbricoides* (roundworm). The anthelmintic action is probably due to the neuromuscular blocking property of the drug.

Antiminth is partially absorbed after an oral dose. Plasma levels of unchanged drug are low. Peak levels (0.05-0.13μg/ml.) are reached in 1-3 hours. Quantities greater than 50% of administered drug are excreted in feces as the unchanged form, whereas only 7% or less of the dose is found in urine as the unchanged form of the drug and its metabolites.

Indications. For the treatment of ascariasis (roundworm infection) and enterobiasis (pinworm infection).

Warnings. *Usage in Pregnancy:* Reproduction studies have been performed in animals and there was no evidence of propensity for harm to the fetus. The relevance to the human is not known.

There is no experience in pregnant women who have received this drug.

Precautions. Minor transient elevations of SGOT have occurred in a small percentage of patients. Therefore, this drug should be used with caution in patients with pre-existing liver dysfunction.

Adverse Reactions. The most frequently encountered adverse reactions are related to the gastrointestinal system.

Gastrointestinal and hepatic reactions: anorexia, nausea, vomiting, gastralgia, abdominal cramps, diarrhea and tenesmus, transient elevation of SGOT.

CNS reactions: headache, dizziness, drowsiness, and insomnia. Skin reactions: rashes.

Dosage and Administration. *Children and Adults:* Antiminth Oral Suspension (50 mg. of pyrantel base/ml.) should be administered in a single dose of 11 mg. of pyrantel base per kg. of body weight (or 5 mg./lb.); maximum total dose 1 gram. This corresponds to a simplified dosage regimen of 1 cc. of Antiminth per 10 lb. of body weight. (One teaspoonful = 5 cc.)

Antiminth (pyrantel pamoate) Oral Suspension may be administered without regard to ingestion of food or time of day; and purging is not necessary prior to, during, or after therapy. It may be taken with milk or fruit juices. Because of limited data on repeated doses, no recommendations can be made.

How Supplied. Antiminth is available as a pleasant tasting caramel-flavored suspension which contains the equivalent of 50 mg. pyrantel base per ml., supplied in 60 cc. bottles.

ROERIG Pfizer
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BOOK REVIEW

POST-MORTEM, by David M. Spain, M.D., and Janet Kole. Doubleday and Company, New York. 1974. Pp. 286. Price $7.50.

When I was first given this book for review, I looked forward eagerly to an entertaining and instructive book by a well known forensic pathologist. What I found, instead, was several small books. The first section, or book, served primarily as a vehicle for the authors views on civil rights and activist movements. While we agree with his call for better justice for all people, the heroes that he selected do not lend themselves very well to sympathy. Certainly this section will not sell many books in Mississippi.

The second section, or book, is the best and is really what I thought the book might be all about. The detective work of a good forensic pathologist is essential in the solution of crime, especially suspected homicide. The several cases presented in this section are well worked up and interesting. Here the author is at his best, although he frequently forgets his own admonition of the need for humility. His statistics on suicide are important, but his opinions as to the causes of suicide are just "one man's opinions."

The third section, or book, might be called his philosophical or opinion book. In it he discusses a number of things including cigarette smoking, iatrogenic disease, stress in heart attacks and our "Throwaway Society." His attacks on the practicing clinician might be more impressive if we didn't recognize the all too common pose of the pathologist sitting in his seat of judgment in his basement autopsy room, dealing with a static situation, armed with hindsight, and passing judgment on his colleagues above stairs, who are dealing with living individuals in a constant and often precarious state of flux.

As a bibliomaniac, I don't recognize the existence of a truly bad book. So much of the heart and soul of the author goes into the writing of a book that it would be a disservice not to hear what he has to say. Some authors, however, succeed better than others; and some books are better than others. Unfortunately, Dr. Fisher tries to say too much.

Buford S. Chappell, M.D.

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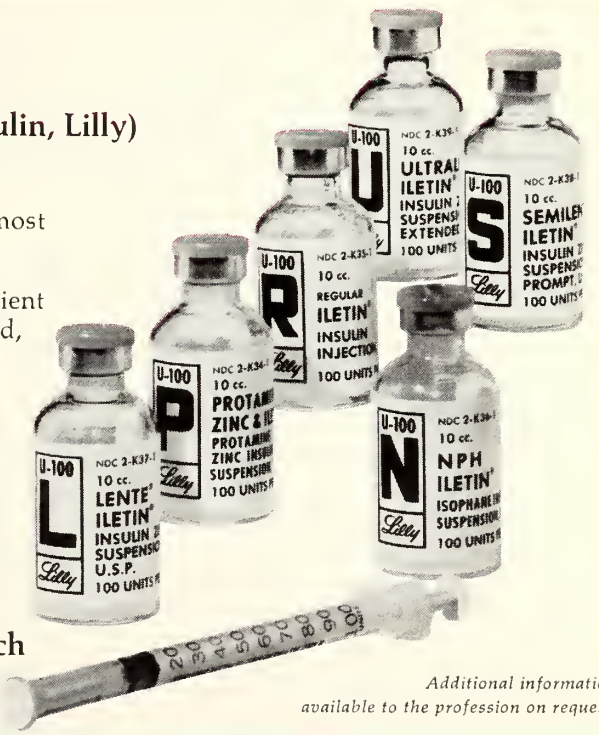
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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association. Business office: 1508 Washington Street, Columbia, South Carolina 29201

Subscription price: $6.00 in the U. S. ($7.00 per year, Foreign). Second Class Postage paid at Columbia, S. C. and at additional mailing offices.

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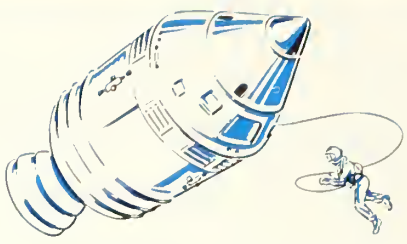
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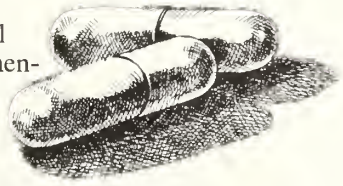
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CONTRAINDICATIONS: Hypersensitivity to any of the tetracyclines.
WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**
Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)
Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.
Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)
All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.
Tetracyclines are present in milk of lactating women taking tetracyclines.
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Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.
PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.
In venereal disease when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.
Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.
In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).
Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.
Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.
ADVERSE REACTIONS: **Gastrointestinal** (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.
Skin: maculopapular and erythematous rashes, exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).
Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).
Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.
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Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.
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The Weight of Professional Opinion

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The Board of Directors of the American Academy of Family Physicians

The Executive Board of the American Academy of Neurology

The Committee on Drugs of the American Academy of Pediatrics

The American College of Allergists

The Executive Committee of the American College of Obstetricians and Gynecologists

The Board of Regents of the American College of Physicians

The Board of Trustees of the American Dental Association

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The American Psychiatric Association

The Executive Committee of the National Association of Retail Druggists

The Board of Directors of the Pharmaceutical Manufacturers Association

The National Wholesale Druggists' Association



Joint Statement on Antisubstitution Laws and Regulations

The purpose of this statement is to affirm the support of the participating organizations for the laws, regulations and professional traditions which prohibit the unauthorized substitution of drug products.

Traditionally, physicians, dentists and pharmacists have worked cooperatively to serve the best interests of patients. Productive cooperation has been achieved through mutual respect as well as a common concern for the ideals of public service. This mutual respect has been reflected, in part, by joint support over the years for the adoption and enforcement of laws and regulations specifically prohibiting unauthorized substitution and encouraging joint discussion and selection of the source of supply of drug products. The basic principles of medical, dental and pharmacy practice are thus utilized and preserved in the interest of patient welfare.

The antisubstitution laws have not obstructed enhancement of the professional status of pharmacy any more than they have in and of themselves guaranteed absolute protection from unsafe drugs, or freed physicians, dentists and pharmacists from their responsibilities to patients. As a practical matter, however, such laws and regulations encourage interprofessional communications regarding drug product selection and assure each profession the opportunity to exercise fully its expertise in drug usage, to the advantage of patients.

Physicians and dentists should be urged to increase the frequency and regularity of their contacts with pharmacists in selection of quality drug products, recognizing that economies to patients can be improved through such communication, taking into account the patients' needs. The pharmacist's knowledge of the chemical characteristics of drugs, their mode of action, toxic properties and other characteristics that assist in making drug selection decisions should be utilized to the fullest extent practicable by physicians and dentists in serving their patients.

Since drug product selection entails knowledge derived from clinical experience, the physician's and dentist's roles in product selection remain primary and do not permit delegation of decisions requiring medical and dental judgments. A broader role in therapy will evolve for pharmacists as improved understanding and cooperation among the professions continue to grow.

There has been no evidence that there are convincing reasons to modify or repeal existing laws and regulations prohibiting the unauthorized substitution of another drug product for the one specified by a prescriber. It is our belief that such laws and regulations merit the joint support of the medical, dental and pharmaceutical professions and the pharmaceutical industry.

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THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 70 MARCH, 1974 NUMBER 3

RHINOPHYMA: TREATMENT BY SURGICAL SCULPTURE

CARTER P. MAGUIRE, M.D.*
KATHLEEN A. RILEY, M.D.**

Rhinophyma may be more familiar to the connoisseur of the Renaissance art than the average physician because of a famous portrait by Ghirlandaio (1449-1494) of an "Old Man and His Grandson." The "Old Man" has a very large red and out-of-shape nose covered with nodules. The disfigurement is usually associated with rosacea resulting in an irregular thickening of the skin and enlarged follicular orifices. There is usually no diagnostic problem.

The cause is unknown as in the related diseases of rosacea and acne vulgaris. Neither food, alcoholism nor emotional stress have been proven provocative factors.

The pathology consists of hyperplasia of the sebaceous glands, connective tissue and vascular bed with a diffuse lymphocytic infiltrate in the dermis.



*Charleston, South Carolina
**Clinical Professor of Dermatology
The Medical University of South Carolina
Charleston, South Carolina



The treatment is similar to that used in acne and rosacea but when the nose becomes much enlarged and disfigured the best treatment is by superficial shaving off of the excessive tissue with the scalpel. It heals rapidly and results are usually good but regrowth may occur.

CASE REPORT

The history is of a seventy-eight-year-old white male seen initially because of extensive deformity of the nose due to rhinophyma (Fig. 1, A,B,C). The patient stated that the growth had begun about twenty years previously and over the years had gotten progressively worse. Finally it reached the point where fissures developed with superimposed infection and the patient was sent to his family physician and later to a dermatologist. The dermatologist referred him to a plastic surgeon after local treatment and prescribed tetracyclines to control the active lesions.

Examination revealed marked hyperplasia and hypertrophy of the skin of the nose. There were numerous cracks and fissures between the lobulation which oozed purulent material on pressure. The tip of the hypertrophied nose hung to the level of the lower lip. There were similar early processes on the skin of the right cheek and forehead.

The patient was admitted to the hospital and the following day in the operating room under general anesthesia, a solution containing ½ per cent xylocaine and 1-200,000 epinephrine was injected about the periphery of the nose to lessen the blood loss. After the vasopressor effect had been obtained the two lesions of the right cheek and the forehead were excised and closed primarily. The excess thickness of the nasal skin was excised using a double edged razor blade. Bleeding was controlled by pressure. Finally, using the electric dermabrader, all irregularities were smoothed and a compression dressing was applied. The dressing was removed after three days and the operated area of the nose kept lubricated with an antibiotic ointment. He was discharged from the hospital on the fifth post-operative day. Healing was complete by the twenty-first post-operative day and the patient was discharged (Fig. 2, A,B,C).

DISCUSSION

The amateur sculptor was asked how it was possible that he was able to carve such a beautiful statue of an elephant from marble. "Simple," he said, "Get yourself a block of marble and knock everything off that doesn't look like an elephant." So it is with human noses!

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SOUTHERN SOCIETY OF ANATOMISTS
13TH ANNUAL MEETING

The Southern Society of Anatomists 13th Annual Meeting was held in Richmond, Virginia, from November 29 to December 1, 1973. Dr. William P. Jollie of Richmond, the President, was in the chair. Official abstracts of their meeting follow.

ALBRIGHT, B. C., Department of Anatomy, Medical College of Virginia, Richmond, Virginia. *Distribution of dorsal root fibers to Clarke's column from hindlimb spinal cord levels in the lesser bushbaby (Galago senegalensis).*

Dorsal roots were severed in seven bushbabies at cord levels T_{12}, L_1, L_3, L_6, and S_2 and the cord transected at the second coccygeal (Coc_2) level. Representative segments were cut in transverse or longitudinal planes at 40 micra, kept in serial order and stained with the Fink and Heimer and cresylviolet methods. Dorsal root fibers from T_{12}, L_1, L_3 and L_6 projected ipsilaterally to Clarke's column from levels L_3 to T_3, L_2 to T_4, L_3 to T_5, and L_3 to T_8 respectively. Lesions at S_2 and Coc_2 showed no degeneration to Clarke's nucleus. Termination of fibers in Clarke's column from T_{12}, L_1 and L_3 lesions showed a ventrolateral to dorsal shift from caudal to more rostral levels. Fibers from L_6 lesion terminate throughout the nucleus at L_3 and shifted dorsally from L_2 to T_8. There is a complex longitudinal plexus within the interior of the nucleus in levels T_8 to T_{11}. Dorsal root fibers from hindlimb levels in the bushbaby overlap extensively throughout most of Clarke's column and have a consistent pattern of termination from caudal to more rostral levels. This may represent a neural mechanism which could function to increase hindlimb and thoracic integration of proprioception.

ANDERSON, K. V. and G. S. PEARL, Department of Anatomy, Emory University School of Medicine, Atlanta, Georgia. *Bilateral trigeminal innervation of canine teeth in cats.*

The distribution of trigeminal afferents from the teeth was studied in cats with both neurophysiological and anatomical methods. Using electrophysiological techniques, responses were recorded from both the left and right trigeminal nerves following stimulation of a single canine tooth. Conversely, following stimulation of the trigeminal ganglion on one side, responses were recorded in the canine teeth of either side of the jaw. Bilaterally distributed responses were not recorded in the trigeminal nerves following stimulation of the first or second premolars, nor could such responses be recorded in the first or second premolars following stimulation of the trigeminal nerves. The conduction velocities for contralateral responses were similar to those for ipsilateral responses.

Using neuroanatomical degeneration techniques, the course of trigeminal afferents was studied directly. Lesions were placed in the trigeminal ganglion; and, after 2½ to 5½ days, the animal was sacrificed, and the jaw was placed in decalcifying solution. When the jaw was fully decalcified, it was embedded in gelatin. Sections through teeth that were located ipsilaterally and contralaterally to the lesion were then stained using the Fink-Heimer II method. Dense fiber degeneration was observed in the pulps of canine teeth ipsilateral to the lesion and modest amounts of degeneration were observed in canine teeth contralateral to the lesion. Small amounts of degeneration were occasionally observed in the first and second premolars contralateral to the lesion.

ANDREOLI, J. W. and J. LANGMAN,* Department of Anatomy, University of Virginia, Charlottesville, Virginia. *Repair in the cerebellum after prenatal chemical insult.*

The purpose of this study was to determine whether the neuroepithelium of the developing CNS has the potential to repair itself after prenatal chemical insult. In the mouse, the neuroepithelium of the rhombic lip gives rise to Purkinje cells on embryonic days 11, 12 and 13 as shown by ^{3}H-thymidine labeling. Injection of 5-fluoro-2'-deoxyuridine (5-FUdR), an inhibitor of DNA synthesis, on embryonic day 12 resulted in cell death in the neuroepithelium of the rhombic lip 5 to 12 hrs. after treatment. By 24 hrs. the neuroepithelium appeared normal, but thin. Postnatal examination of the cerebellar vermis revealed that the 5-FUdR treatment resulted in a significant reduction in the number of Purkinje cells.

To determine the possibility of repair after cell loss, the mitotic index (MI) in the neuroepithelium of the rhombic lip was measured at various intervals after 5-FUdR treatment on embryonic day 12. In controls the MI decreased from embryonic day 12 to 15; in the treated ones the MI was significantly lower than in the controls 12 hrs. after treatment, but increased over the next 24 hrs. By 48 hrs. (embryonic day 14) the MI was significantly higher than in the controls. Injection of 5-FUdR on embronic day 12 followed by an injection of ^{3}H-thymidine on day 14, revealed that coincident with the increased MI a substantial number of Purkinje cells were formed on day 14. Embryonic day 14 is one day beyond the normal three day period of Purkinje cell formation. Hence, a prenatal chemical insult resulted in cell death within the neuroepithelium and a permanent loss of neurons in the adult. Cell death however, was followed by an increase in the MI indicating compensatory cell production and by an extension in the period of Purkinje cell formation.

*This work was supported by grant NS06188-09

BADARUDDIN, R. H., H. PUCHTLER and F. S. WALDROP,* Department of Pathology, Medical College of Georgia, Augusta, Georgia. *Investigation of the pericanalicular layer in human liver.*

Electron microscopists demonstrated filaments in the pericanalicular cytoplasm. This pericanalicular layer was thickened in cholestasis. Such changes are difficult to visualize by light microscopy because conventional staining methods color the fibrous layer the same shade as cytoplasm. Histochemical investigations showed that the "walls" of bile canaliculi resemble myosins. We therefore tested the usefulness of this approach for demonstration of alterations of the pericanalicular layer in hepatic diseases.

Methacarn-fixed paraffin sections were treated with the tannic acid-phosphomolybdic acid-Levanol Fast Cyanine 5RN stain. A layer adjoining bile canaliculi, terminal bars, smooth muscle and myoendothelial cells were colored deep blue. In normal livers the myoid layer around bile canaliculi was delicate and continued into bile ducts. In cases with cholestasis, e.g. hepatic cirrhosis, congenital atresia of bile ducts, the thickness of the myoid layer adjacent to dilated bile canaliculi was significantly increased.

Correlations of light microscopic observations with electron microscopic data indicate that the myoid layer corresponds to the pericanalicular layer of filaments. It has been propsed that the pericanalicular layer may provide the mechanical strength and elasticity to promote bile flow. The myosin-like staining properties of this layer suggest that it may be contractile.

*Supported by USPHS Research Grant #HL 12147 from the National Heart and Lung Institute and General Research Support Grant #FR-5365.

BOLENDER, D. L. and R. L. BUTCHER,* Departments of Anatomy and Obstetrics and Gynecology, West Virginia University, Morgantown, West Virginia. *In Vitro Maturation of Rat Oocytes During Various Cellular Associations.*

Oocyte maturation, the period between

the end of the resting stage and second meiotic metaphase arrest, was generally considered to be under the control of the pituitary gonadotrophins. In 1935 Pincus and Enzmann found mammalian oocytes would mature spontaneously when released from ovarian follicles. This finding raised a question as to the mechanisms of *in vitro vs. in vivo* maturation. In the present study preovulatory follicles were removed from sexually mature Sprague Dawley rats at various times before, during and after the critical period on the day of proestrus. Four types of cultures were set up in the same dish using Brinster's media (BMOC-3) under oil in an atmosphere of 5 per cent CO_2 in air. Culture types were: Type I, follicle enclosed oocytes: Type II, cumulus enclosed oocytes: Type III, oocytes alone: Type IV, oocytes plus granulosa cells. All cultures were ended at 8:00 p.m. on the day of initiation. Each replicate included one culture for the series of times used (11:00 a.m., 1:00, 3:00, 5:00 p.m.). The criterion for maturation was breakdown of the germinal vesicle, (GVB). Oocytes were examined with phase contrast optics. When oocytes were removed from the follicle, they underwent germinal vesicle breakdown regardless of cellular association in culture. The time of culture initiation had no effect on the behavior of the oocytes removed from the follicle. However, the majority of follicularly enclosed oocytes cultured at or before 2:00 p.m. did not undergo GVB where as most isolated after 3:00 proceeded to mature.

*Supported in part by NSF Grant =GB 22605.

CLABOUGH, J. W. and C. G. JACKSON, Department of Anatomy, Medical College of Virginia, Richmond, Virginia. *Prenatal development of the Harderian gland in the golden hamster.*

Light microscopic studies were made of hematoxylin and eosin stained serial sections of 12 to 16-day fetal hamster heads. The Harderian gland anlage is first evident at gestational day 13. It arises as an invagination of the conjunctival epithelium at the base of the nictitating membrane, extends posteriomedially for a short distance, and terminates as a single compact follicle. By day 14, mitotic activity has resulted in further elongation of the duct and enlargement of the distal portion of the Harderian gland primordium. By day 15, the distal portion of the gland exhibits much branching giving rise to primitive acini which are widely separated by mesodermal components. The 16-day (term) Harderian gland lies adjacent to the posterior and medial aspects of the globe and consists of an elongated duct and scattered follicles composed of one to several layers of mitotically active cells. Canalization of the duct and follicles is more extensive at this stage. No intraluminal pigment was observed in any of the prenatal stages; however, pigment granules resembling those of the pigmented epithelium of the retina were associated with cells of the proximal portion of the developing Harderian gland duct.

CLARK, George, Department of Anatomy, Medical University of South Carolina and Veterans Administration Hospital, Charleston, South Carolina. *Reproduction in mice chronically poisoned with disulfoton.*

For six generations mice were maintained on a diet containing 150 ppm disulfoton. At birth the pups were examined for obvious developmental defects. None were found. Two groups of the eighth generation were studied. The first group was born from mothers who had been on the disulfoton diet but were put on regular diet when the pups were one week old. The second group was born from mothers who had been on regular diet for four weeks before being placed in breeding cages. The only significant difference was in the size of each litter. It is concluded that very low ACHEase (less than 20% of normal) is not necessarily associated with disturbances in reproduction and development.

DUNG, H. C.,* Department of Anatomy, University of Texas Health Science Center at San Antonio, San Antonio, Texas. *Evidence of prolactin cell deficiency in connection with low reproductivity of female 'torpid' mice.*

'Torpid' was a single recessive gene mutation which occurred in the DBA/2J mouse strain. Affected mice have neurological as well as other clinical symptoms such as runting and low reproductivity. Several studies were done in our laboratory to determine if there were pathological changes in the pituitary gland and ovaries of female 'torpid' mice.

When examination of vaginal smears was performed to determine the regularity of estrous cycles of the mouse, it was found that only one out of six (16.6%) affected females has a cycle similar to that observed among normal mice.

A number of organs from both normal and 'torpid' mice were selected for dry weight determination. Results of the weight study showed that both pituitary gland and ovaries of 'torpid' mice between three and four months of age weighed significantly less than those of normal animals.

Under the light microscope, ovaries of adult 'torpid' mice were seen to contain no corpora lutea, though growing follicles were often present. Differences were also found in the stroma of ovaries as well as pituitary glands between normal and 'torpid' females. Under the electron microscope, the pituitary gland of 'torpid' mice contained significantly less prolactin cells than that of normal mice. Absence of corpora lutea and prolactin cell deficiency are possibly the pathological basis for the low reproductivity of the mutant mice.

*Supported by a grant of the Morrison Trust Foundation.

ENLOW, D. H., Department of Anatomy, West Virginia University School of Medicine, Morgantown, West Virginia. *Control Mechanisms in Bone Growth.*

An understanding of the basic nature of the control process that regulates the growth of bone tissue and which establishes the definitive size and morphology of a whole bone is today regarded as one of the key problems in bone biology. Biomechanical forces have traditionally been assumed by many investigators to be the principal agent involved in growth control. However, it is clear that some explanations of Wolff's Law are oversimplified and incomplete since it is now known that the distribution of growth and remodeling fields does not coincide with the placement of muscles on a bone or the direct forces exerted by them. This report evaluates the role of physical forces as they relate to bone growth and examines the overall problem of control at the local tissue level, including an evaluation of genetic effects, the piezo effect, the neurotropic effect, locally distributed morphogenic agents, the functional matrix, and other similar considerations involving control mechanisms.

FLICKINGER, C. J.* Department of Anatomy, University of Virginia School of Medicine, Charlottesville, Virginia. *Formation, intracellular transport, and release of secretory protein by the seminal vesicle and prostate of the rat, as shown by electron microscope radioautography.*

Protein secretion in the seminal vesicle and ventral prostate of young adult male rats was studied by radioautography after an intraperitoneal injection of 5 mCi of leucine-^{3}H. The percent of silver grains and the relative concentration of grains overlying different cell organelles were determined at intervals between 4 min. and 2 hr. after administration of the precursor. In the earliest samples of both glands, taken 4 min. after injection, the proportion and concentration of grains was greatest over the rough endoplasmic reticulum. At subsequent times, while radioactivity associated with the endoplasmic reticulum declined, peaks of labelling were observed sequentially over the Golgi apparatus and over secretory vacuoles in both glands, but these peaks occurred earlier in the seminal vesicle (at

10 and at 30 min.) than in the prostate (1 and 2 hr.). Labelled secretions appeared in the lumen of the seminal vesicle by 30 min. and in the lumen of the prostate by 1 to 2 hr. after the injection. The results indicate that secretory proteins in the seminal vesicle and the prostate are synthesized in the rough endoplasmic reticulum and are transported to the Golgi apparatus where secretory vacuoles are formed. The process of intracellular transport and release of secretory protein in the seminal vesicle is rapid, exceeding not only that of the prostate but many other protein secreting cells as well.

*Supported by Contract NO1-HD-1-2506 with NICHD.

FRIERDICH, M. L. and J. M. DELPHIA. Department of Anatomy, Ohio State University, Columbus, Ohio. *The effects of high-temperature incubation on growth and mortality in the chick embryo between 15-19 days of incubation.*

The present study is concerned with the effects of continuous high-temperature incubation (39.5° C) on the chick embryo. The areas studied included: general growth of the body and the glycogen body as shown by weight, visceral organ over-growth (Celosomia) and mortality.

Fertile white leghorn eggs were incubated at either 37.5° C. (Controls) or 39.5° C (Experimentals). Specimens were harvested at the beginning of days 15-19. For total body weight and glycogen body weight thirty to sixty-five specimens were used for each Control and Experimental Group for each of the above days.

The number of embryonated eggs in the Celosomia and mortality studies ranged from thirty-two to two-hundred-twenty five in each Control and Experimental Group.

The Experimental specimens weighed significantly different than the Controls on days 15 and 18. The glycogen bodies of the Experimentals weighed significantly different than the Controls on days 15 and 19.

Celosomia was observed among the living Experimental specimens but was not observed in the Control specimens. The experimental Groups showed a three to six-fold increase in the percent mortality.

FULLER, P. M. and D. J. PRIOR,* Departments of Anatomy and Neurological Surgery, University of Virginia School of Medicine, Charlottesville, Virginia, and School of Biological Sciences, University of Kentucky, Lexington, Kentucky. *Identification of the Mesencephalic Nucleus; by use of Cobalt Iontophoresis.*

The mesencephalic trigeminal nucleus is the only nucleus within the central nervous system of the frog which is composed of primary sensory neurons. Descriptions in the literature of the location of the cells is based upon either normal material or that resulting from retrograde chromatolysis.

In recent years the use of several dye and cobalt iontophoresis techniques have been successfully used by invertebrate neurophysiologists for the location of nerve cell bodies and their processes. This technique has now been extended for use in tracing fiber pathways and locations of nerve cells in vertebrate systems. The brain and spinal cord of adult bullfrogs are removed after perfusion with frog Ringer's solution, and placed in a dissecting dish of cold saline. A suction electrode, filled with 100mM cobaltous chloride, is then placed over the cut end of the trigeminal nerve. Using a voltage divider the cobalt ions were electrophoresed up axons to the cell bodies. The brains were then bathed in a 10% solution of ammonium sulfide to precipitate the cobalt. The brain is then fixed and prepared for standard histological processing.

The cells of the mesencephalic trigeminal nucleus, which are filled with the black precipitated cobalt sulfide, are located in layers 2 and 4 of the optic tectum.

*Supported by National Aeronautics and Space Administration Grant No. NGR 47-005-186.

GOODE, G. E. and D. E. HAINES, Department of Anatomy, Medical College of Virginia, Richmond, Virginia. *Origin, course and termination of corticospinal fibers in Galago, a prosimian primate.*

The purpose of the present investigation was to determine: 1) the cortical origin of fibers which project to the spinal cord 2) the somatotopic arrangement of these projections and 3) the location of spinal nuclei under direct cortical influence. Following selective lesions degenerating fibers originated from the cortex of the dorsal convexity, rostral and superior to the Sylvian complex. An incomplete decussation occurred in the caudal medulla giving rise to a contralateral tract in the lateral funiculus which extended to sacral segments and an ipsilateral ventral tract to upper lumbar segments. Somatosensory cortex gave rise to projections which terminated only in the dorsal nuclei of the dorsal horn. Projections from forelimb and hindlimb cortical areas selectively terminated in the cervical and lumbar enlargements, respectively. From lesions of "motor" cortex, dense degeneration was associated with the medial cells of nucleus proprius cornu dorsalis and nucleus cornucommissuralis dorsalis and ventralis. Moderate degeneration was seen in zona intermedia and nucleus motorius medialis. This medial organization of corticospinal projections correlates with the vertical clinging and leaping mode of locomotion of *Galago*.

HAAR, J. L., Department of Anatomy, Virginia Commonwealth University, Richmond, Virginia. *Light and electron microscopy of human fetal appendix from 9 to 20 weeks of gestation.*

Human fetal appendix has been examined at 9, 14 and 18 weeks of gestation using both light and electron microscopy. The epithelium at 9 weeks of gestation is composed of stratified tall columnar cells. These cells contain large deposits of glycogen and the outermost cells have a microvillous border. The lamina propria, muscularis mucosa and submucosa at this stage cannot be differentiated. The zone subjacent to the epithelium and separated from it by a basal lamina is composed primarily of irregularly shaped mesenchymal cells having cytoplasmic extensions which are often joined to one another. The muscular layer at 9 weeks of gestation is composed of cells which are slightly elongated in shape and somewhat circularly arranged. Neurites at this stage are surprisingly abundant in this area and cell clusters are observed which appear to be developing ganglia. By 18 weeks of gestation various populations of cells compose the simple epithelium, some having tall microvilli with prominant microfilaments while others have almost no microvilli; some contain large vacuoles of flocculent material, others accumulations of dense droplets and some are without stored material. Numerous intraepithelial medium-sized lymphocytes are observed at 18 weeks located at the basal region of the epithelial cells and often adjacent to the basal lamina. Most cells of the lamina propria are mesenchymal although medium-sized lymphocytes occasionally are seen. Differentiated smooth muscle cells containing spindle-shaped nuclei and myofilaments are observed in the muscularis along with bundles of neurites and clusters of nerve cell bodies.

HAINES, D. E., Department of Anatomy, West Virginia University School of Medicine, Morgantown, West Virginia. *Cerebellar corticovestibular projections of the posterior lobe in Galago and Tupaia.*

The direct projections into vestibular nuclei from the cortex of the posterior lobe were studied in a total of 34 animals stained with the Fink and Heimer ('67) method.

The vermis projects to all four vestibular nuclei, most heavily to the lateral and spinal nuclei and to a lesser degree to the superior and medial nuclei. The medial nucleus receives few if any fibers from the rostral vermal cortex, and a light persistent projection from the caudal

vermis. The evidence of this study strongly supports the concept that cerebellar corticovestibular fibers are ipsilateral. Only those lesions that impinged on or crossed the vermis midline show either contralateral or bilateral projections respectively.

The paravermal area of the cortex sends a light projection to the superior, lateral and spinal nuclei. The preterminal debris in these nuclei is noticeably light. The medial nucleus receives a few isolated fibers in most animals.

The lateral area of the cortex sends a sparse projection to the superior and lateral nuclei. No fibers were seen in or traced to the spinal nucleus, and only rarely was preterminal debris seen in the medial nucleus, leaving the impression that the lateral cortex is not closely related to this nucleus.

HARRIS, B. W. and F. K. HILTON, Department of Anatomy, University of Louisville School of Medicine, Health Sciences Center, Louisville, Kentucky. *Glucose utilization in hearts from the big brown bat, Eptesicus fuscus at hibernating and normothermic temperatures.*

An *in vitro* study of hearts from the big brown bat, *Eptesicus fuscus,* was conducted using animals exposed to hibernating (6-9° C) or normothermic (21-23° C) temperatures. The bats were given intraperitoneal injections of heparin, and diabutal; their hearts were removed and cannulated through the stump of the aorta. The hearts were then placed on a recirculating unit and perfused for periods up to 75 minutes with a Krebs-Henseleit buffered salt solution containing 99 mg% of glucose. Hearts perfused at 5-7° C were termed "hibernating," while those perfused at 35-37° C were termed "normothermic." Heart rate, EKG, and temperature of the perfusate were monitored constantly; glucose utilization was measured at 15 minute intervals. The heart rate during perfusion was found to be 26 ± 10 beats/minute for "hibernators" and 361 ± 42 beats/minute for normothermic hearts. The amount of glucose utilized during timed intervals for hibernating *vs* nonhibernating hearts was: 15 minutes, 0.15 ± 0.21 mg (N = 6) *vs* 1.114 ± 0.52 mg (N = 5); 30 minutes, 0.12 ± 0.22 mg (N = 6) *vs* 2.85 ± 1.61 (N = 7); 45 minutes, 0.30 ± 0.03 mg (N = 4) *vs* 3.30 ± 1.17 (N = 3); 60 minutes, 0.64 ± 0.58 mg (N = 4) *vs* 3.99 ± 1.13 (N = 6); and 75 minutes, 0.57 ± 0.70 mg (N = 5) *vs* 5.45 ± 1.29 mg (N = 3). In 75 minute animals, the number of beats per mg of glucose utilized for the "hibernators" was 3008 ± 806 beats/mg and for the normothermic hearts, 4027 ± 775 beats/mg (Z = 0.06). Glucose utilization curves have been established for hearts at hibernating and normothermic temperatures. The preliminary data indicate possible differences in the utilization of glucose between the two groups.

HARRIS, T. M. and L. B. SHEPPARD,* Department of Anatomy, Medical College of Virginia, Virginia Commonwealth University, Richmond, Virginia. *The fine structure of extravascular heterophils in the traumatized rabbit corneal stroma.*

The avascular cornea stroma with its homogenous population of fibroblasts within thick collagenous lamellae provides a unique model for the study of the migration of leukocytes through dense connective tissue. Leukocytic infiltration was stimulated in the corneas of four New Zealand White rabbits by scraping away the corneal epithelium 12 hours prior to sacrificing the animals. These experimental corneas are characterized by a lack of fibroblasts in the outer one fourth of the stroma and an abundance of heterophils (polymorphonuclear leukocytes) in the interlaminar spaces previously occupied by fibroblasts. The heterophils exhibit all of the fine structural features previously described for vascular heterophils. In addition they frequently exhibit phagosomes containing either collagenous or cellular debris. Often the migrating path of the heterophil is marked by a

channel through the stroma that appears to result from a dissolution of the collagen fibrils by the migrating heterophil. Heterophils are frequently observed in various stages of passage through the walls of capillaries in the limbus. It is noteworthy that during this process the heterophils do not appear to be squeezed or deformed in any way; rather their appearance is suggestive of a cooperative interaction between the heterophil and the capillary endothelial cells. The fate of the missing fibroblasts and the ultimate fate of the extravascular heterophils have not been determined.

*Supported by Old Dominion Eye Bank and Research, Inc.

HAWKINS, W. E. and H. D. HOWSE, Gulf Coast Research Laboratory, Ocean Springs, Mississippi. *Fine structure of Synapses in a crab cardiac ganglion.*

The cardiac ganglion of the blue crab, *Callinectes sapidus*, contains the perikarya of five "follower" neurons (75 u diameter) and four "pacemaker" neurons (20 u diameter). Also, terminals of nerves from the central nervous system end in the ganglion.

Synapses occur mainly near the perikarya which are situated at the anterior and posterior ends of the ganglionic trunk. The synapses appear to be the chemically transmitting type. Some synapses are between terminals, both of which are identifiably axonic. Axosomatic synapses, rare in invertebrates, are found on both types of perikarya. Two categories of nerve terminals are revealed after aldehyde fixation. One type contains small clear vesicles (450 A diameter) and dense vesicles (900 A diameter). The other type contains both flattened (250 A x 550 A) and large clear vesicles (900 A diameter).

Flattened vesicles are of interest because they have been correlated with inhibitory transmission (Nature 214: 833-834, 1967). However, flattened vesicles can be produced in excitatory terminals by fixation in hypertonic aldehyde solutions (J. Neurocytol. 1: 279-296, 1972). Preliminary studies indicate that terminals of flattened and large clear vesicles in *Callinectes* are demonstrable after fixation in solutions 300 mos/1 lower than the concentration of the crab's blood. Such terminals are not clearly distinguished in OsO_4 fixed ganglia.

HEIMER, L., Department of Anatomy, University of Virginia, Charlottesville, Virginia. *The efferent connexions of the olfactory tubercle in the rat.*

Heat lesions were made under direct vision in the olfactory tubercle of 29 rats. Following survival times of 1-7 days, the resulting degeneration was studied with combined light-and electron microscopic techniques. The three major projection areas for fibers from the olfactory tubercle seem to be the following: 1) the mediodorsal thalamic nucleus (MD), 2) nuclei gemini in the postero-lateral part of the hypothalamus and 3) the substantia innominata. The projection field in the substantia innominata is situated just ventral to the striatum underneath the temporal limb of the anterior commissure, but outside the main stream of the medial forebrain bundle. Electron-microscopic analysis of the projection area in the substantia innominata demonstrates that the ultrastructural features of this region are similar in every major respect to those of the adjoining globus pallidus. These findings, as well as other observations regarding the extrinsic connexions of the olfactory tubercle, suggest that the projection from the tubercle to the substantia innominata is part of the striopallidal projection system.

JONES, D. C., J. A. HIGHTOWER, and J. D. BURKE, Department of Anatomy, Medical College of Virginia, Virginia Commonwealth University, Richmond, Virginia. *Cytosomes in alveolar epithelial cells of the newt, Notopthalmus viridescens.*

Pulmonary alveolar cells of the newt were investigated using both light and electron microscopic techniques to determine the presence, or absence, of cyto-

somes. These cytoplasmic organelles are lamellated osmiophilic bodies which are believed to be responsible for the production of surfactant.

Observations on respiratory tissue prepared for LM (6u, H&E) revealed that the lungs were elongated, unpartitioned, connective tissue sacs lined with a highly vascularized epithelium which varied from simple squamous to pseudostratified columnar ciliated.

Lung tissue for EM was excised and fixed in 3 per cent phosphate-buffered glutaraldehyde (pH 7.3) for 24 hr., postfixed in 2 per cent buffered osmium tetroxide, dehydrated in acetone and infiltrated with Durcupan. Silver to white sections were cut, stained with uranyl acetate and lead citrate, and observed with an RCA EMU 3G electron microscope.

Many of the cells bordering the pulmonary lumen possessed microvilli. Only a few of these cells contained cytosomes. The 1 or 2 cytosomes seen in each cell usually appeared close to the nuclear envelope. In one case a cytosome was seen in direct association with the Golgi complex supporting one concept of the cytosome origin. No transitional forms between cytosomes and mitochondria were observed.

JORDAN, R. L.,* Department of Anatomy, Medical College of Virginia, Richmond, Virginia. *Analysis of limb malformations induced by methotrexate in the rabbit fetus.*

The New Zealand white rabbit embryo is susceptible to the embryotoxic effects of Methotrexate, a potent folic acid antagonist. High doses administered during the 11th to the 15th day of gestation produce a unique spectrum of malformations which include skull defects, cleft lip and palate and severe dysplasias of the extremities.

The limb defects are of particular interest. Upper limb phocomelia, hemimelia and minor degrees of syndactyly and ectrodactyly predominated in rabbits treated on day 11. Methotrexate, given on day 12, 13 or 14, resulted in distal fore and hind limb anomalies in all fetuses. Adactyly, syndactyly and ectrodactyly occurred in multiple combinations and variations in all extremities with no two fetuses affected in the same manner. Treatment after day 14 of gestation produced only slight hind limb syndactyly in a small number of offspring. Polydactyly was not observed in any fetus examined.

Analysis of cleared specimens revealed the bones of the paws and digits to be primarily affected with a distinct developmental stage specificity as to the type of osseous defect found.

The use of the rabbit as a model system for investigation of human malformation syndromes involving limb dysplasias is discussed.

*Supported by NIH grant HD 6146.

KLARA, P. M., Department of Anatomy, Tulane University, School of Medicine, New Orleans, La. 70112. *Mitotic Response Following Cannular and Solid Needle Lesions in the Cerebral Cortex of Adult Rats.*

Lesions in adult rat parietal cortex were made with a 16 gauge hypodermic needle (outside diameter 2 mm) in the right hemisphere or a blunt dissecting needle (outside diameter 0.5 mm) in the left hemisphere. Animals were sacrificed by perfusion of 10% formalin and 1% acetic acid through the left ventricle at 2 and 4 days after surgery.

The lesions were examined concentrically to a distance of 250u from the lumenal edge under oil immersion. Three classes of mitotic cells were observed based on the size of mitotic figures and cellular morphology. These classes were: 4-7u, 7-12u and 10-25u. All three classes of mitotic figures were seen in both types of lesions and in both 2 day and 4 day postoperative animals. The smallest figures are believed to be microglia; these characteristically display tightly packed chromosomes. Figures of the intermediate group are believed to be mononuclear cells of hemato-

genous origin; debris is frequently evident in the cytoplasm of these cells. Mitotic figures of the largest group are thought to be astrocytes; a widely dispersed chromosomal pattern at metaphase is characteristic of this cell type.

Data presently are being collected in an attempt statistically to evaluate the patterns and frequencies of the mitotic cells.

KNUDSEN, J. F., A. COSTOFF and V. B. MAHESH*, Department of Endocrinology, Medical College of Georgia, Augusta, Georgia. *Morphological changes in the ovary and uterus; correlation with serum gonadotropins in rats approaching puberty.*

Uterine and ovarian morphological changes were examined and quantitated in the maturing rat, i.e. from weaning to full vaginal patency, using ocular micrometric determinations. These values were correlated with serum FSH and LH levels measured by radioimmunoassay. Noticeable changes in the endometrium were not apparent until day 32 of age, at which time the luminal epithelial and stromal layers of the endometrium increased some two-fold over previous age groups. Microscopic examination revealed a marked change in the epithelial cells of the lumen, from inactive, simple columnar characteristic of ages 22 through 31, to pseudostratified columnar cells on days 32 through 38. Further qualitative changes became pronounced on these days, as evidenced by hypertrophy and hyperplasia of stromal cells, in addition to active uterine gland proliferation. Similarly, the myometrium also increased dramatically from an average of 16 u prior to day 32, to 25.0 u on day 32. Subsequent increases occurred through day 34; although significant increases beyond this age group were not evidenced. Morphological changes in the ovary became apparent in rats, 32 days of age. At this time, considerable numbers of large, vesicular, type 6-7 follicles were present as compared to small-medium sized follicles, exemplary of earlier ages. The proportion of large follicles over small-medium classed follicles continued to increase up to day 38; the day of the gonadotropin surge, at which time serum FSH increased six fold over pre-peak values, and serum LH simultaneously increased over basal levels, as much as 30 fold.

*Supported by NIH Grant Number HD-04626-13.

KRIEBEL, R. M., Department of Anatomy, Medical College of Virginia, Richmond, Virginia. *The neuronal distribution within the dorsal lateral geniculate nucleus of the albino rat.*

The dorsal lateral geniculate nucleus of adult albino rats was studied in routine Luxol fast blue - cresyl echt violet preparations. Cytometric studies were done on these preparations in order to elucidate subgroupings of DLGN neurons according to size and distribution of the neuronal perikarya. In one animal measurements were made on 3200 cells. In each of the four additional animals 600 cells were measured. The volume of each cell in the population, the mean cell volume of the population, its standard deviation (SD), standard error (SE), and coefficient of variation (CV) were obtained on a Wang^{R} 700 series calculator programmed for the volume of a prolate spheroid. The data were analyzed further by Tukey's Q test for statistical significance.

The distribution of neurons based on cell volume indicated that the small to medium size neurons were distributed uniformly throughout the anterior, middle, and posterior thirds of the nucleus. In contrast, the largest neurons were concentrated in the middle third of the nucleus. Further analysis showed that the nucleus was comprised of two zones: a superficial zone that was characterized by the presence of large neurons and a more deeply located medial zone that had smaller neurons.

MARTIN, G. F., R. DOM and H. YUEN*, Departments of Anatomy, The Ohio State University, Columbus, Ohio, Medical University of South Carolina and Universidad Nacional de San Agustin, Arequipa, Peru.

Cerebellopontine projections in the American opossum. A study of their origin, distribution and overlap with fibers from the cerebral cortex.

The origin, course and distribution of cerebellopontine fibers was studied in the opossum by employing the Nauta-Gygax and Fink-Heimer techniques. Destruction of the caudal, medial division of the fastigial nucleus elicits bilateral degeneration in a restricted area of the medial pontine nucleus. This small terminal field is located in the angle between the medial lemniscus and the pyramidal tract and is found throughout the caudal 3/5 of the pons. Lesions that involve either the interpositus anterior or the dentate nucleus produce degeneration within the contralateral descending brachium conjunctivum and basilar pons. Terminal fields are located with the median, medial (paramedian nucleus of cat), peduncular, ventral and lateral pontine nuclei. The heaviest degeneration is in the medial nucleus.

Although cerebellar and cortical projections have different targets in the basilar pons, there is some overlap. Fastigial and preorbital fibers have partial overlap in the dorsal part of the medial nucleus, whereas the peduncular and lateral nuclei are the areas of overlap between the interpositus anterior and dentate projections with those from forelimb (and probably face) cortical areas. This overlap is particularly obvious in the caudal part of the lateral nucleus and occurs between fibers from limb motor-sensory cortex and those arising mainly within the anterior interpositus nucleus. There is no pontine overlap between cerebellar and visual or auditory cortical projections.

*Supported by USPHS Grant NS-07410 and funds from the World Health Organization.

MARTINEK, J. J. and M. L. GALLAGHER*, Department of Anatomy, The Ohio State University College of Medicine, Columbus, Ohio. *The Ultrastructure of Terminal Villi Basal Laminae of Definable Normal Human Term Placentas.*

Electron microscopic examination of terminal villi of definable normal human term placentas revealed three ultrastructural features of fetal capillary and trophoblast basal laminae which, heretofore, have been considered characteristic of abnormal placental material obtained from various clinical situations. A "normal" pregnancy, by definition, satisfied five criteria: 1) the prenatal months were uncomplicated by disease or trauma as determined by patient records; 2) there was an uncomplicated labor and vaginal delivery; 3) the maternal postpartum period was normal and uneventful; 4) the neonate was viable and free from apparent congenital defects; and 5) the pregnancy was free of Rh incompatibilities. In 24 of 24 placentas (100%), focal layering of the fetal capillary basal lamina was observed and occurred both in the presence and the absence of pericytes. Focal layering of trophoblastic basal laminae was observed in 14 to 24 placentas (58%). Areas of trophoblastic and fetal capillary basal laminae fusion were detected in 21 of 24 placentas (88%). The significance of these observations will be discussed in terms of recently proposed mechanisms of basal lamina layering.

*Supported by General Research Support Grant 5409, National Institutes of Health.

MELOAN, S. N. and H. PUCHTLER*, Department of Pathology, Medical College of Georgia, Augusta, Georgia. *Observations on infrared fluorescence of stained sections.*

In previous studies many dyes which showed little or no fluorescence in UV-blue light were strongly fluorescent in longer wave visible light (400-600 nm), but most blue and green dyes remained non-fluorescent. However, textile chemists described fluorescence of fabrics dyed with various blue and green dyes. The intensity of fluorescence depended on the nature of the fiber, i.e., the dyes showed different intensities of fluorescence when bound to rayon, cotton, polyamide or polyacrylic fibers. Comparable data on stained bio-

logical material seem to be lacking.

Deparaffinized sections were stained with 1% solutions of various green dyes in 2% acetic acid. A Reichert Zetopan microscope was equipped with a xenon lamp, infrared cut-off (exciter) filter, infrared recording barrier filters and infrared color film.

Striated muscle, vascular smooth muscle and myoepithelial cells of lingual glands showed strong infrared fluorescence; connective tissue was weakly fluorescent. In mixed illumination (infrared fluorescence plus long wave red light) only muscle and myoepithelial cells showed infrared fluorescence; connective tissue appeared green. Preliminary studies indicate relations between dye configuration and intensity of infrared fluorescence; several dyes showed little or no fluorescence.

These pilot studies indicate that infrared fluorescence microscopic technics are suitable for studies of human tissues.

*Supported by USPHS Research Grant #HL 12147 from the National Heart and Lung Institute and General Research Support Grant #FR-5365.

MIHAILOFF, G. A., Department of Anatomy, Ohio State University, Columbus, Ohio. *A correlated light and electron microscopic analysis of the opossum basilar pons.*

The nuclear conformations within the basilar pontine gray (BPG) of the American opossum have been examined in Nissl preparations as a prelude to Golgi and electron microscopic studies. Four major nuclei are present and are named medial, lateral, ventral and peduncular in accordance with previous studies. In addition, several smaller subnuclei are described. Cells in the BPG range in size from 9 to 35u. The typical projection cell, as revealed in Golgi impregnations, has a variable dendritic pattern with those neurons resident in the peduncular nucleus being more polar while others, located in the other three nuclei, generally have a more radial type of arrangement. Certain projection cells can be distinguished by their dendritic surface which is studded with irregular protrusions and stalked appendages. These neurons appear to be restricted to those areas of the BPG receiving afferents from visual cortical areas. Available evidence suggests that smaller cells ranging in size from 15 to 20u may be intrinsic to the BPG. The long tapering dendrites of these cells distally give rise to stalked appendages as well as thin beaded processes. More proximally, axon-like processes are seen to arise from the dendrites of this cell.

Ultrastructural observations of the neuropil of the BPG indicate four classes of presynaptic profiles. One group of synaptic endings ranges in size from 2 to 6u, contains round vesicles and has been observed most frequently in the medial nucleus. The other three groups of boutons are less than 2u in their greatest dimension and are distinguished by their synaptic vesicles; one group containing round vesicles that measure 340-420A, a second group containing round vesicles that measure 470-640A and a third group containing flattened or spheroidal vesicles measuring 240-320A X 500-680A.

MONTGOMERY, R. L. and E. L. CHRISTIAN, Department of Anatomy, University of North Carolina, Chapel Hill, North Carolina. *The influence of gonadal steroids on brain amine levels in castrated rats.*

A functional relationship between gonadal steroids and biogenic amines has not been established. Therefore, this study was undertaken to offer evidence for the existence of a direct involvement between brain amines and the hypothalamic-hypophyseal-gonadal axis.

Adult male Sprague-Dawley rats weighing 250-300 g were placed at random in one of two groups. The control group received no endocrine manipulations. The second group of rats were castrated and placed at random in one of three subgroups; 1) castrated, 2) castrated-testosterone propionate injected, and 3) castrated-sesame oil injected.

One group of castrated rats received

daily subcutaneous injections of 0.1 ml of sesame oil. The second group of castrated rats received daily subcutaneous injections of 0.1 ml of testosterone propionate (50 g) mixed with sesame oil. The third group of castrated rats received no injections. All rats were decapitated, brains removed, weighed, placed on dry ice and stored at 20° C. Concentrations of NE, DA and 5-HT were determined spectrophotofluorometrically.

We observed significant decreases ($p<.005$) in NE, DA and 5-HT in castrated rats. It also was observed that this decrease in brain amines in castrated rats could be significantly elevated ($p<.005$) to a normal range with daily injections of testosterone propionate.

MURRAY, H. M., Department of Anatomy, Medical College of Virginia, Virginia Commonwealth University, Richmond, Virginia. *The red nucleus of the lesser bushbaby (Galago senegalensis) and the tree shrew (Tupaia glis).*

The mammalian red nucleus has been studied by a variety of techniques (Massion, 1967). However, the red nucleus of the Lorisidae and Tupaiidae has not been previously described. The morphology of the red nucleus of *Galago senegalensis* and *Tupaia glis* was studied in transverse, horizontal or parasagittal sections stained by the cresyl acetate violet, Golgi-Fox and Loyez method. In the horizontal plane the oval nucleus was oriented in a caudomedial to rostrolateral direction. On transverse section it had a ventromedial to dorsolateral orientation. The caudal pole was bounded by the decussating fibers of the superior cerebellar peduncle. The rostral pole was ill-defined; the anterior limit of the nucleus was arbitrarily defined as the ventral portion of the habenulopeduncular tract. Sections cut in the different planes demonstrated no distinct magnocellular and parvocellular subdivisions in the red nucleus of the two species. Red nucleus neurons were classified as large, medium, or small on the basis of perikaryal size and dendritic pattern. Large neurons were localized in the caudomedial two-fifths of the nucleus. Medium and small cells were distributed throughout the nucleus. Medium-sized cells were the most numerous of the cell types.

NADING, A. M. and J. R. KEEFE, Department of Anatomy, University of Virginia, Charlottesville, Virginia. *Cytodifferentiation of Avian Retina.*

The first cells in the embryonic chick retina to cease DNA synthesis are the presumptive ganglion cells of the 4 day old posterior superior nasal quadrant. Optic nerve fibers are also first observed at this time (Cowan et al., J Exp Zool *169*: 71, 1968). The present study sought to analyze cytochemical alterations in the level and type of nuclear proteins (Histones) using coordinated microspectrophotometry of Feulgen/Fast Green, Ammoniacal Silver and dinitroflurobenzene techniques during this critical differentiative period.

Fertilized white Leghorn eggs were set on day zero (36.5° C, 60% R.H.) and heads fixed in 10 per cent neutral buffered formalin on days 3-10. Serial sections were mounted randomly on slides and stained as follows: Feulgen/Fast Green (Block and Godman, 1955); Ammoniacal Silver (Black and Ansley, 1966); or dinitroflurobenzene for protein bound lysine (Pipkin, 1968). Nuclei were measured using a two-wavelength method on a Leitz MPV microspectrophotometer.

The results demonstrate an initial decrease in arginine-rich (Protamine?) content from day 4 to 6 followed by an increase in histone content from days 6 to 8 in the differentiating ganglion and bipolar cells. Both lysine and arginine-rich fractions are affected with arginine-rich fractions showing the largest proportionate increase. The altering histone pattern corresponds with the pattern of retinal differentiation.

ODOR, D. L.*, Department of Anatomy, Virginia Commonwealth University, Richmond, Virginia. *Comparison of the ultrastructure of the oviductal epithelium of*

the pig-tailed monkey with that of the rabbit.

Light and electron microscopic structure of the fimbrial epithelium of oviducts of estrous, ovulatory, ovariectomized and ovariectomized-estradiol benzoate treated rabbits and of mid-cycle and ovariectomized-estradiol treated pig-tailed monkeys was studied. The ciliated cells in both species have only a few elements of granular endoplasmic reticulum and of the Golgi complex and many groups of free ribosomes. Glycogen bodies and intracellular ciliated vacuoles occurred only in the ciliated cells of the rabbit. Stages of ciliogenesis were present in many cells in 14 of 24 ovariectomized rabbits treated with estradiol for 3 to 5 days. In two mid-cycle monkeys and in one treated with estradiol limited ciliogenesis occurred. In three mid-cycle monkeys and in one treated with estradiol, axonemal complexes of many different cilia were aggregated within the cytoplasm of small apical protrusions. The apical surfaces of secretory cells of the monkey epithelium were much more complex than that of the rabbit. The structure, size and number of secretory granules varied with the hormonal status in the rabbit, but generally they were large and moderately electron-lucent or small and electron-dense; in the monkey most were dense, but a few showed an internal structure. Large masses of glycogen particles lay basally in many of the secretory cells of the monkey, but not in the rabbit.

*Supported by USPHS Grant HD-03752 and Contracts 70-2141 and 70-2142.

O'STEEN, W. K., C. R. SHEAR and K. V. ANDERSON, Department of Anatomy, Emory University, Atlanta, Georgia. *Experimental extraocular muscle degeneration and regeneration in light-exposed rats.*

Exposure of albino rats to fluorescent illuminance causes a selective destruction of retinal photoreceptors; the degree of damage depends on the intensity, environmental temperature, and exposure time (Noell et al., 1966; Gorn and Kuwabara, 1967; O'Steen and Anderson, 1971). Observations now indicate that, if the environmental temperature is elevated during light exposure, the extraocular muscles of these animals concurrently undergo degenerative changes. Sarcoplasmic vacuolization and muscle fiber swelling and fragmentation are closely followed by an extensive leucocytic infiltration into the damaged area. If the animals are returned to room temperature and lighting (72° C; 70-foot-candles), after exposure, mononucleated and binucleated myoblasts appear within the endomysial sheaths as the damaged sarcoplasm is being removed by acute phagocytosis. By 48 hours after exposure, elongated multinucleated myoblasts and myotubes extend parallel to the original axis of the muscle fibers. At this time phagocytic activity was significantly reduced. One week after exposure, the initial mass of the extraocular muscle had been replaced with myofibers having central rowing of nuclei or peripheral nuclei. Early myoblastic stages were rarely seen at this time. When compared with control extraocular muscle from rats kept at room lighting and temperature, regenerating fibers appeared to have a greater nuclear population and an increased basophilia. By two weeks after muscle damage by exposure, myofiber continuity and typical striation patterns were reestablished throughout the muscles, and regeneration, at least at the light microscopic level, apparently was completed.

OWERS, N., Department of Anatomy, Medical College of Virginia, Richmond, Virginia. *Biology of proteinases.*

Proteinases are enzymes produced by both plant and animal cells in an inactive form known as zymogens. These zymogens may be activated by pH and temperature changes, metals, hormones and other enzymes. The zymogens may be secreted to form extracellular proteinases which break down extracellular proteins such as

occur in animal digestive juices and fungal and bacterial colonies. The presence of tryptic inhibitors in mucous secretions and tissue fluids in man may be a protective response to proteinase producing organisms. Proteinases may occur within cells (cathepsins) and these are demonstrable histochemically in the liver, proximal tubules of the kidney, intestinal epithelium thyroid, pituitary, nervous tissue, spleen, trophoblast giant cells, yolk sac epithelium, bone, cartilage, and sperm acrosome, (Owers, J Cell Biol 152a, 47, 1970). Proteinases have not been histochemically demonstrable in normal muscle, skin and tendon. Degenerative pathological tissues in muscular dystrophy, denervation atrophy, allergic encephalomyelitis and multiple sclerosis have been shown to contain elevated amounts of Cathepsin D, using biochemical methods. Certain invasive tumors show elevated activity of acid hydrolases in the unsedimentable fraction, including cathepsin, at their peripheral edges. It seems reasonable to conclude that the proteinases play an important role in nature, and in health and disease. In each case, their specific function remains to be elucidated.

POOLE, M. C., J. C. McPHERSON, A. COSTOFF, and V. B. MAHESH*, Department of Endocrinology, Medical College of Georgia, Augusta, Ga. *Ultrastructure of Pituitary Gonadotropes and Serum Gonadotropin in the Estradiol 17B Treated Rat.*

The action of estradiol (E_2) on the secretion of gonadotropin in the rat varies with the physiological state at the time of administration and is dose dependent. Very small amounts of E_2 can suppress the post-castration rise of gonadotropins, larger doses produce the positive feedback effect with an ensuing ovulatory type surge, while pharmacologic doses elicit complete suppression. The following experiments correlate the serum gonadotropins with changes in the pituitary ultrastructure in the rat after castration and replacement with small quantities of E_2. Groups of castrate, immature, female rats were given various dosages of E_2 (0.03 to 10.0 ug/kg/day) for five days. At autopsy blood samples were obtained for radioimmunoassays of FSH and LH, pituitary samples were taken for electron microscopy, and the uteri were weighed. Estrogen treated castrate gonadotropins were then compared with intact and castrate control values. Serum FSH and LH increased at least three fold during this short term castration. A dose of 0.2 ug E_2 was sufficient to cause an inhibition of the castrate hypersecretion of FSH and LH, returning them to control levels. The gonadotropes in the castrate controls became enlarged and the endoplasmic reticulum (ER) hypertrophied. Within the FSH cells of the E_2 treated castrates there was an increased number of secretory granules, dense bodies, and often a better developed Golgi complex. The LH gonadotropes were larger, contained an abundance of granules, and usually several cisternae of ER. The mammotropes displayed an increased granulation, and an extensive ER as compared to controls. In conclusion, it is suggested that although the exogenous E_2 inhibited the castration hypersecretion of FSH and LH, it may have little effect on their synthesis and/or storage.

*Supported by NIH Grant Number HD-04626-13.

RINK, R. D., and C. R. POOL*, Department of Anatomy, University of Louisville Health Sciences Center, Louisville, Kentucky. *The intestine and prolonged hypothermia.*

Prolonged deep hypothermia produces progressive deterioration of cardiovascular parameters in nonhibernating animals. In the present study the role of the intestinal tract as a contributing factor has been investigated. Three groups of rats were subjected to different experimental procedures following the induction of 15° C total body hypothermia, which was subsequently prolonged for 7.5 h. The first group, whose intestinal circulation was occluded for the duration of the experiment, showed significantly

better maintenance of mean arterial pressure and less hemoconcentration than did groups whose pelvic and lower limb circulation had been interrupted or which had been sham-operated. Blood gases, pH, and heart rate did not differ significantly between groups, and a comparison of blood glucose levels in the group devoid of intestinal circulation and the sham-operated group showed no significant differences. Segments of the small intestine were removed from additional sham-operated animals, and one-micron Epon sections, stained with toluidine blue, were prepared for light microscopy. The epithelial cells of the distal portions of the villi from 7.5 h animals showed a pronounced loss of stainability, frequent vacuolation, and in some cases separation from the subjacent lamina propria. There was no obvious pooling of blood in the gut wall. It is suggested that prolonged deep hypothermia initiates pathologic changes in the small intestine with the concomitant release of a factor (or factors) which promotes the rate of development of progressive hypotension and hemoconcentration.

*Supported by General Research Support Grant HEW 5 S01 RR05375.

SAWYER, L. M., Department of Anatomy, Medical College of Virginia, Richmond, Virginia. *A fine structural analysis of 8-day chicken comb and comb-feather chimeras utilizing ruthenium red.*

Epithelial-mesenchymal interactions in 8-day chick skin were studied in chimeras prepared for electron microscopy. Chimeric grafts were formed by tryptic separation and recombination of comb epidermis on feather dermis and feather epidermis on comb dermis. The chimeras were grown on the chorioallantoic membrane for 24, 48, and 72 hours.

Enzymatic separation of the tissue removed the basal lamina, and after recombination it was gradually reformed. Ruthenium red was used to demonstrate acid mucopolysaccharides in the basal lamina of normal (control) 8-day comb epidermis. Using this tecnique acid mucopolysaccharides were not apparent in the basal lamina of normal (control) 8-day feather epidermis. After the tissues had undergone tryptic separation in the experimentals there was no ruthenium red positive material along the basal lamina. As the basal lamina was reformed, analysis of chimeric grafts gave results that were similar with the staining reaction of the epidermis found in normal tissue. FE/CD chimeras had a staining reaction similar to that of normal feather tissue while CE/FD chimeras demonstrated a staining reaction similar to normal comb tissue. Since acid mucopolysaccharides are important in epithelial-mesenchymal interactions these morphological findings are suggestive of an inductive role for epidermis at 8 days. This inductive activity may be expressed through differences in the matrix material.

SCHABTACH, E., C. B. KIMMEL and D. L. KIMMEL, Department of Biology, University of Oregon, Eugene, Oregon and the Department of Anatomy, West Virginia University, Morgantown, West Virginia. *Structure, development and synaptogenesis of Mauthner's cell in the axolotl (Ambystoma mexicanum).*

Mauthner's cells (M-cells) are giant interneurons with cell bodies measuring up to 300 um in length; a single pair is present in the brains of most teleosts and amphibians. The cell bodies, located in the medulla oblongata at the level of the vestibular nerves, have prominent, dorsally located nuclei and distinctive axon hillocks. M-cells have two major, extensively branching dendrites; the lateral dendrite projects among lateral line and vestibular root fibers. The medial dendrite interrelates with longitudinally coursing nerve fiber tracts (Herrick, 1914). M-cell axons decussate at their level of origin and extend caudad through the entire spinal cord.

M-cells can first be identified as unipolar neurons in young embryos (Harrison, stage 36) by their unusually large

size (Leghissa '42). They become bipolar by stage 38, and multipolar, with a recognizable axon, at stage 41. They have the characteristics of a definitive M-cell by the early larval stage 45.

M-cells are identified in developing axolotl brains with phase contrast optics in 5 um sections embedded in plastic. Selected levels are then reimbedded, thin sectioned and studied with EM for nerve terminals and synapses. Five types of knobs and two kinds of club endings, distributed on the cell membrane in a distinct pattern, can be recognized during development (Bodian, '37, Robertson, '63). Only chemical synapses have been seen on the axolotl M-cell. Nerve terminals surrounding axonal spines are present at the initial segment.

SCHNITZLEIN, H. N., Department of Anatomy, University of South Florida, College of Medicine, Tampa, Florida. *Anatomy of the telencephalon, division I teleosts.*

The brains of the fishes of Division I (Greenwood, Rosen, Weitzman and Myers, 1966) show certain similarities with each other and differences from other teleosts. The fishes in this group include representatives of the Elopomorpha and Clupeomorpha (the eels and eel-like fishes and the herrings and herring-like fishes). Although the gross brains and habits of these fish vary, the microscopic anatomy as examined in serial sections impregnated with pyridine silver or stained with thionin is unusually consistent. The American eel, *Anguilla rostrata,* has been selected for illustration as the representative of the fishes of this Division. Identification of homologous nuclear areas and fiber tracts have been made using the usual criteria. Sessile olfactory bulbs may be fused in the midline and lack the typical laminar pattern. The striatal areas and amygdala are well developed; however, nuclear boundaries are less distinct than in some other teleosts. Although the preoptic recess does not extend rostral to the anterior commissure, the neurosecretory elements typical of this region are quite evident. Neither a nucleus rotundus nor a nucleus glomerulosus have been identified in these teleosts. It has not been possible to demonstrate differences in the telencephalon in closely related species.

SCHWEISTHAL, M. R., C. FROST and J. BRINN, Department of Anatomy, East Carolina University, Greenville, North Carolina. *Light microscopic techniques for staining A, B and D cells in pancreatic islets of the fetal rat.*

Rat pancreatic A cells have been notoriously difficult to stain, and fetal A and D cells do not react with conventional histological methods. It would be desirable to stain fetal A, B, and D cells in order to evaluate the developing fetal pancreas in vivo and in vitro. As a result 243 modifications of eleven histological techniques were applied to fetal rat pancreases at 15 to 22 days of gestation.

Beta cells can easily be stained with Gomori's aldehyde fuchsin after 16½ days. On the other hand, A cells demonstrated little response to the indole methods (xanthydrol and the postcoupled benzylidine reaction), the fluorescent orthophthalaldehyde technique, or to the injection of cobaltous chloride. Some very light staining was seen with phosphotungstic acid hematoxylin and with lead hematoxylin under specific conditions. A modification of Grimelius' aqueous silver nitrate technique was developed which stained A cells brown and another smaller group of cells black. The fetal A cells fluoresced brightly with the indirect immunofluorescent method for glucagon, and could also be demonstrated with this technique in restaining after silver and after pseudoisocyanin staining.

Delta cells were completely unstained by the Hellerstrom and Hellman alcoholic silver nitrate technique in the fetal rat, but could be seen within a week after birth with this method. Fetal D cells showed bright yellow fluorescence with the pseudoisocyanin technique after acid

hydrolysis. Further, the D cells could also be seen when restrained with pseudoisocyanin after removal of the silver stain used for A cells. It was concluded that A, B and D cells can be stained in the fetal rat pancreas. In addition, the results with the silver stain are suggestive of a possible fourth cell type.

SPYKER, J. M.*, Department of Anatomy, University of Virginia Medical School, Charlottesville, Virginia. *Delayed consequences of prenatal exposure to environmental contaminants: Implications over a lifetime.*

For certain environmental contaminants recently studied, the unborn organism appears to be at much greater risk to toxic effects than the adult. However, it is unlikely that prenatal exposure to pollutants at levels currently found in our environment will result in grossly recognizable birth defects. The problem is that, in the absence of morphological anomalies or overt functional impairment, subclinical damage may exist and express with age.

The objective of this research is to investigate subtle and delayed consequences of prenatal exposure to neurotoxic chemicals in the environment. In addition to detecting and describing effects at all stages of the lifespan, attempts are made to identify sites and mechanisms of action. Major findings from studies on delayed effects of methylmercury will be presented. Implications for environmental health and teratogenicity testing will be discussed.

Sixty healthy pregnant mice were exposed to low-levels of methylmercury at different stages of gestation. Ninety-eight per cent (372) of neonates were apparently normal at birth. Subsequent developmental, behavioral, biochemical and morphological evaluation of these "normal" offspring throughout their three-year lifespans produced some startling results. In the absence of any overt signs, offspring from treated mothers responded differently from controls when tested for subtle behavioral deviations at various stages throughout postnatal development. These early indications of trouble were forewarnings of later, more severe problems: neuromuscular disorders, learning deficits, infections, immuno-deficiencies, generalized debilitation, and early aging. Evidence from this research suggests that evaluation of subtle and long-term consequences of prenatal exposure is essential for a thorough assessment of the impact of environmental contaminants on human health.

*Supported by a grant from the National Foundation/March of Dimes.

SWANSON, JR., E. A., D. E. MANN and E. PLOUMIS, Departments of Anatomic Sciences and Pharmacology, Temple University School of Dentistry, Philadelphia, Pennsylvania. *Presumptive diagnosis of experimental arteriosclerosis by dental x-ray.*

It was the purpose of this research to test the hypothesis that in humans there might exist a correlation between systemic arteriosclerosis and calcification of the dental pulp chamber. Two avenues of research were undertaken to test the presumptive hypothesis: (1) complete case histories were taken on 500 random patients in our dental clinic and each patient completed a questionnaire relating to any personal or familial history of heart disease and arteriosclerosis; each patient had bite-wing x-rays taken, and (2) dental x-rays and histologic specimens of 16 control rabbits were compared with those of 16 rabbits which had been made experimentally arteriosclerotic by feeding a high cholesterol diet.

Appropriate x-rays and histologic micrographs will be projected to test the hypothesis.

The human x-rays and data tend to confirm the suspicion of a relationship, as do the rabbit x-rays. The microscopic specimens of rabbit pulp show increased vascularity with swelling and engorgement of the vessels as well as sludging of blood cells within the vessels. In addition, the pulp chambers show considerable deposition of secondary dentin.

These data suggest a definite relationship between pulpal calcification and arteriosclerosis. The diagnostic implications of these findings will be discussed.

TAKEBE, K, M. VITTI and J. V. BASMAJIAN, Kobe University, Japan; Universidade Estadual de Campinas, Brazil; and Emory University, Georgia. *Electromyography of semispinalis capitis and splenius capitis muscles.*

Using bipolar fine-wire electrodes, we examined electromyographically the right and left semispinalis capitis and splenius capitis muscles in fifteen healthy young adults. Action potentials were recorded on FM magnetic tape and each experiment was also videotaped. The data were analyzed by PDP-8 computer integrating the voltage output. The muscles were studied in the resting state and during a variety of neck and head movements. Both muscles were inactive in resting state; flexion from neutral position; lateral bending to right and left side; loading on the head; flexion against resistance; retrusion of the head; deep breathing; book-reading position; neck flexion against head weight in supine position; and in lateral bending against head weight to right and left side. On the other hand, both muscles showed activity, ranging from negligible to very marked during the movements of extension of the head from flexed position and from neutral position and against resistance; free chin up from rotation position and against resistance to right and left side; anterior protrusion of the head; neck extension against head weight in prone position; and neck extension from prone position.

TRAN, T. A. and R. V. GREGG, Department of Anatomy, University of Louisville, Health Sciences Center, Louisville, Kentucky. *Experimental restraint-ulcer: an etiologic role for hypothermia.*

Immobilized rats may develop gastric ulcers. Few observations have been made of the body temperature of such rats. Rats restrained in a cold environment demonstrate a reduction in body temperature and have an increased rate of ulceration. Unrestrained rats exposed to cold may develop ulcers. Since Selye has reported a loss in body temperature in rats which experienced the alarm reaction at room temperature, the relationship between body temperature and ulceration in parabiosed and nonparabiosed rats was investigated during restraint at room temperature. Parabiosed rats were included in the study because we have shown previously that the unrestrained member of a parabiosed pair develops ulcers when the other member is restrained. The body temperatures of restrained and unrestrained rats, and of unrestrained and restrained parabiosed rats have been recorded during periods of immobilization up to 30 hours by means of colonic telethermoprobes. Body temperature of control rats is $37.4^\circ C \pm 0.8$. Control parabiosed rats show no significant difference from this. Restrained rats, whether single or parabiosed, all develop macroscopic gastric ulcerations, and show a mean drop in body temperature of $6.0^\circ C \pm 1.0$ after 28 to 30 hours of restraint. Unrestrained rats parabiosed to restrained rats have a somewhat slower onset of ulceration, but of those that ulcerated macroscopically within 28 to 30 hours; body temperature was found to drop $4.5^\circ C \pm 0.8$. Unrestrained rats that developed minimal or no ulcers in spite of being parabiosed to a restrained mate showed a drop in body temperature of $3.5^\circ C \pm 1.0$ by the 9th hour of restraint followed by a gradual return to normal body temperatures.

The possibility that reduction in body temperature may play an etiologic role in the induction of restraint ulcers is being investigated.

WALDROP, F. S. and H. PUCHTLER*, Department of Pathology, Medical College of Georgia, Augusta, Georgia. *Application of reactive dyes to microscopy.*

Reactive dyes were introduced into the textile industry in 1956. This new class of

dyes contains groups which form covalent bonds. Dyeing is determined by the substantivity of the dye, the accessibility and reactivity of the substrate, and the steric relationship of dye and substrate. The major reactive sites in proteins are $-NH_2$, -SH and -OH groups. These dyes apparently received little attention in histology. We therefore studied reactive dyes of the Levafix series. The reactive group of Levafix E dyes is dichloroquinoxaline; Levafix P dyes contain a methylsulfonylpyrimidine side-chain.

Paraffin sections were treated with aqueous solutions of reactive dyes at various pH levels; in other series NaCl was added to the dye solutions and sections were stained with and without pretreatment with alkaline alcohol. Unreacted dye was removed by treatment with hot water or alkaline buffers.

The staining properties of dyes within each group differed widely, i.e., the staining characteristics were apparently determined by the dye configuration rather than by the reactive groups. Sections of the same organ fixed in various fixatives showed striking differences in staining patterns. Some dyes colored erythrocytes, keratin or myofibrils selectively. These pilot studies indicate that several reactive dyes are suitable for histology.

*Supported by USPHS Research Grant #HL 12147 from the National Heart and Lung Institute and General Research Support Grant #FR-5365.

WARD, J. W., Department of Anatomy, University of South Florida College of Medicine, Tampa, Florida and J. Y. CHRISTMAS, JR., Gulf Coast Research Laboratory, Ocean Springs, Mississippi. *A report of five neoplasms from fish.*

The earliest available description of a tumor of a fish is that of Bell in 1783 who wrote that osteomas of a butterfly fish, listed as *Platax pinnatus*, were the size of hazel nuts, soft in texture and filled with oil. Such tumors had invaded neural and haemal spines; being so common in that species, at first they were considered normal and classified as a separate species, *Chaetodon arthriticus*.

Schlumberger and Lucke (1948) reported that all major varieties of tumors which occur in mammals, including man, and in birds, have been recorded in fishes.

Tumors have been reported from more than 50 families of fishes, including 96 genera and at least 119 species. Almost half of them are in five families: the Salmonidae, Gadidae, Cyprinidae, Bothidae, Pleuronectidae.

Five neoplasms are reported here from five genera of fish as follows: Schwannoma (neurofibroma, neurolemmoma,) from the goldfish, *Carassius auratus*, papilloma from the American eel, *Anguilla rostrata*, lipoma from the small mouth bass, *Micropterus dolomieui*, a fibroma (parasitic) from the Gizzard shad, *Dorsoma petenense* and a polycystic kidney from *Carassius auratus*.

WARD, R. C., J. C. McPHERSON, A. COSTOFF, and V. B. MAHESH*, Department of Endocrinology, Medical College of Georgia, Augusta, Georgia. *The effect of medroxyprogesterone on the pituitary ultrastructure and gonadotropins in rats.*

Although it has been shown (McPherson et al., 1973) that progesterone administration alone does not elicit an inhibitory action on circulating gonadotropins, there is some evidence (Schally et al., 1968) that medroxyprogesterone (Provera, Upjohn) can effect serum gonadotropin levels (LH). Medroxyprogesterone (MP) is a synthetic progestogen found in various contraceptive preparations (Provest), and it is essential that its biological properties be determined. Milligram quantities of MP were administered to castrated immature female rats. After five days they were autopsied, blood gonadotropin values were measured by radioimmunoassay, and an anterior pituitary ultrastructure study was undertaken. It was found that the 4.0 mg/kg/day dose of MP was sufficient to reduce serum LH values to control levels, whereas 8.0 mg/kg/day of this compound was needed to suppress

the castration hypersecretion of both LH and FSH. After castration the FSH and LH gonadotropes were larger, contained well developed Golgi complexes and endoplasmic reticulum, but contained fewer secretory granules. The MP treated rats contained FSH cells with a well organized endoplasmic reticulum, an increase in dense bodies and secretory granules, but an involuting Golgi complex. LH cells exhibited a greater cytoplasmic to nuclear ratio, a lamellar endoplasmic reticulum, and an increase in granulation as compared with the controls. From our studies it appears that MP can effect the pituitary gland and suppresses the release of gonadotropins.

*Supported by NIH Grant Number 71-2297.

WOLOSEWICK, J. J., Department of Zoology, University of Georgia, Athens, Georgia. *Reactions of the microtubules (mts) of the mouse seminiferous epithelium to chemical treatments.*

Spindle, Sertoli cell, 9+2 and manchette mts of spermatids were investigated as to their reactions to pepsin digestion, Colcemid (10-4M) and vinblastine (10-4M). The manchette, spindle and Sertoli cell mts are resistant to pepsin digestion after 120 min. of treatment. The 9+2 mts are digested within 60 min., the A-fiber is digested first, followed by the B-fiber and central pair. Cell suspension cultures containing Colcemid exhibit a loss of spindle and Sertoli cell mts and after 30 min. while the 9+2 mts are unaffected after 120 min. Cross links are induced between manchette mts with a subsequent but not a complete loss of mts. Vinblastine treated cells also show a range of reactions. Sertoli cell mts are reorganized into crystals of mt protein within 15 min. Spindle mts are absent from the cells after 30 min. but no crystals could be detected even after 120 min. of treatment. The 9+2 mts were unaffected. Manchette mts are dismantled from their posterior limits and are completely absent after 120 min. The diversity of reactions exhibited by the mts can possibly be attributed to their chemical composition or the presence or absence of associated structures such as cross links.

WORDEN, J. S., Department of Anatomy, West Virginia University School of Medicine, Morgantown, West Virginia. *Postmortem autolytic changes of rat cerebellar ultrastructure.*

Using two Sprague-Dawley rats, an attempt has been made to analyze the degree of autolysis in Purkinje cells, with some reference to changes in astrocytes, oligodendrocytes and myelin. The rats were sacrificed by decapitation. At time zero cerebellar tissue from each rat was fixed in phosphate-buffered glutaraldehyde. For five subsequent 15 minute intervals cerebellar tissue from adjacent areas was excised and fixed in the same manner for one hour. Postfixation was in osmium tetroxide in phosphate buffer for sixteen hours. The tissue was then dehydrated, soaked in propylene oxide and epon and embedded in epon. 500 A sections were cut on an LKB ultramicrotome with glass knives, placed on 400 mesh copper grids and stained in uranyl acetate and lead citrate. Electron micrographs were taken in an RCA electron microscope.

Examination of the micrographs reveals significant and quantifiable degenerative changes in cell and organelle morphology and qualifiable differences in the general cellular and neuropil appearance.

Surprisingly, this type of study, though carried through for light microscopy, to date has received no strict attention by the electron microscopist. The data should prove valuable to the neuroanatomical pathologist at autopsy investgiation as well as to the basic science researcher who finds perfusion fixation impracticable.

President's Pages



In carrying out the duties of President of the S. C. Medical Association I come in contact with a great many people. I am in frequent conferences with leaders of your Association and have also worked with the various Committees of SCMA. I have been in recent conference with some of the political leaders of this state and the leaders of government and especially in the Health Field.

It is my feeling that one of the greatest needs we have as an Association is to carry out the principles of a recent editorial in our S. C. Journal by our Editor, Dr. Edward Kimbrough. The Woman's Auxiliary of the SCMA has asked for projects to work with the SCMA on. One of these projects that was suggested to them was helping in the establishment of a program to let the people of S. C. know that we are interested in providing health care to our people. This would require an organization in each locality to publicize the fact that people can get medical care, emergency medical care, when they move to a new community or when they are without medical care. I have recently had local home town people to return to my office for medical attention because they were told by receptionists in doctors offices in some of the larger cities where they were working or going to school that they did not take any new patients. No suggestion was given by the receptionist that by calling a certain number or going to a certain emergency room that they would receive emergency care. I was in a conference with a high ranking State Official of Health Planning in S. C. recently and he told me of two instances where people had appealed to him to get a doctor for them because they had moved into a community and were unable to get a doctor.

The Editorial of Dr. Kimbrough "Physician, Heal Thyself" urged all County Medical Societies to institute programs which would assure citizens in their geographic area that medical care was available and to establish and publicize some system where these people could obtain this medical care. Dr. Kimbrough also urged that County Societies organize a grievance committee, if not already organized, and to publicize the fact that they have these committees.

At the December Meeting of the SCMA, the Public Relations Committee reported on the problem of availability of medical care and they gave three recommendations which were passed by Council. One, each County Medical Society be asked to advise each member to provide adequate, quick coverage when not on duty himself. It is the responsibility of each physician to answer the necessary calls of his patients. Solutions will vary for affording 24-hour medical care. Two, each County Medical Society is requested to furnish the officers or Executive Director, patient referrals who are unable to get

medical service. Three, each Society is asked to make its membership and population aware of these efforts to assure medical availability to all citizens.

At a recent meeting of Council I told the Council of some of the specific instances that had been reported to me of people not being able to obtain medical service.

We cannot hope to stop the avalanche of government interference in the medical practice unless we make a more determined effort to convince the public that we do have medical facilities available when they are needed.

Please respond to your Councilors and to your County Officers when they ask you to cooperate in this state-wide endeavor to show the lay health care planners in this state that we can furnish medical care to our people.

Harold P. Hope, M.D.
SCMA President

The Journal of the South Carolina Medical Association

50 YEARS AGO

March, 1924

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Editorials

OUR MAN IN CHICAGO

Have you, like so many of us, been somewhat disturbed by the liberal leanings of AMA? Have you ever wished the AMA would conform more to your own and to South Carolina philosophy and politics? Have you ever wanted to have some direct input into the AMA activities? You may have a chance. If we all in the SCMA work together, we may have a chance.

This June in Chicago, SCMA delegate to AMA, John Hawk, will be nominated to the Board of Trustees of AMA, as an alternate choice to the regular slate of nominees. Long time delegate John Hawk is well known and well respected in the halls of government of AMA. He will make an excellent trustee, representative of a large number of AMA members; and he has a good chance of being elected, even though being from a relatively small state with only two delegate votes will impose an additional burden on his supporters.

There are at lesat two ways we who support John Hawk personally and philosophically can assist in getting *our* man in Chicago elected. You will shortly receive from Delegate Tom Parker, John Hawk's campaign manager, a request for funds, funds so necessary in any election, funds necessary to publicize John Hawk and his position. We can all contribute to this. And we should.

A second thing we can do is make a special effort to attend the AMA meeting in Chicago in June. Go there and talk up *our* man in Chicago, John Hawk.

EEK

PRE-CONVENTION THOUGHTS

In these days of tight gasoline, tight money, and tight fee scales, conservatism and austerity have become more necessary and more attractive in our daily lives. This same situation obtains in the life of our South Carolina Medical Association. The leadership of SCMA is striving to get every penny's worth possible from the monies we the membership entrust to its care. One way we can help came up at the last Council meeting.

The Annual Meeting in April is perhaps the biggest and most expensive function of SCMA. The President's Banquet is one of the nicest parts of the meeting. It is good food, good company, and good entertainment. Who could ask for more? But the purpose of this plea is not to stimulate interest in the President's Banquet. Every year our Association loses money on the banquet. We have to guarantee a minimum attendance. The guarantee is customarily set rather high so no one will be left out; an accurate estimate of attendance is impossible because most of us wait until the last minute to buy a ticket. So for the past years we have had less participation than guaranteed, we have paid for unused meals, and the Association has lost money.

So all I am asking here is some foresight. If possible, purchase your Banquet tickets before you get to Myrtle Beach. If it is too much of a strain to think that far ahead, at least buy the tickets when you first arrive at the Beach. This little effort alone could make a very significant saving for *your* SCMA.

EEK

Notes from February Council Meeting

1. South Carolina Medical Building Incorporated was constituted to own our Headquarters Building, received transfer of property from SCMA, selected directors (President of SCMA, Chairman of Council, and Chairman of Building Committee), and elected Tucker Weston Chairman of the Board and President of the Corporation.

2. President Harold Hope reported on several important issues but probably the most significant was his report on his attendance at Governor West's conference on a State sponsored HMO. It appears there is a good possibility that the Governor's proposed State HMO will become a reality, funded by huge Federal and State grants. As presently conceived, it would provide health services to all state employees and school teachers. At this conference, Dr. Hope took the very wise and prudent course of not opposing the concept in all its particulars but did point out four requirements that are very dear to most South Carolina physicians. Because of his positive attitude, Dr. Hope's proposals were well received and will have great influence on the final form of the HMO. Dr. Hope's points, as I understood them, are 1) Fee for service; 2) Freedom of choice for patient and for physician; 3) Involvement of the S. C. Medical Care Foundation in the program's administration; and 4) Provision for service for underprivileged as well as that for state employees.

We are fortunate in having a wise and forward thinking leader like Dr. Hope in these times of transition.

3. A report on the Blue Cross-Blue Shield Program for SCMA members was presented by disappointed representatives of BC-BS. Only about 50 applications have been received and it will take nearly a thousand to make the proposition go. Council suggested several reasons why this very attractive package was not more popular. Among those given: 1) many physicians, especially those in P.A.'s, are already tied in with their insurance; 2) Packaging life insurance with the health insurance; 3) Poor presentation. The SCMA Insurance Committee will confer with Blue Cross-Blue Shield and perhaps improve the situation.

4. Council was informed by the AMA area representative visiting from Atlanta 1) That HEW had abandoned its quest for pre-admission review of Medicare and Medicaid in response to intense pressure from AMA; 2) That the Judicial Review Committee of AMA had voted unanimously to take to court the Cost of Living Council Phase IV controls over health care charges.

5. Council received the Legislative Report published elsewhere in this issue from our Legislative Counsel, M. L. Meadors, and congratulated him for his efforts on our behalf.

6. Ken Owens reported that S. C. Medical Care Foundation is alive and well. Right now, with only 550 members, it may not be large enough to qualify automatically as the South Carolina PSRO. It is certainly the best choice. Efforts to increase its membership are in order.

7. Mike Patton reported on the excellent and precedent making activities of his Peer Review Committee.

8. Council agreed with the Department of Corrections to assist in developing and maintaining standards for adequate medical care for prisoners.

9. Council reserved 20 seats on a charter flight to the AMA Clinical Meeting scheduled Nov. 28-Dec. 6, 1975 in Honolulu. Some of these places will be used for our official delegates and others will be available to members of SCMA, at approximately 30% savings over a commercial flight.

10. Council discussed the ethics and legalities of acupuncture at great length. Deciding that a valid evaluation of acupuncture was necessary before a firm position can be taken, the Council will seek a definitive position from AMA and then make further conclusions.

Editor's Note: The following article by Dr. Hairston appears as a special editorial and represents his personal viewpoints on the subject. The editorial refers to *Cancer Topics*, J S Carolina Med Ass 69:403-404, Oct. 1973.

UNPROVEN CANCER REMEDIES: A RETORT

Cancer treatment by "unproven methods" has recently been subjected to editorial scrutiny with attention focused on such aspects as why patients seek these treatment methods and to features common to proponents of the unproven methods. The editorial appropriately included a list of fears that apparently motivate patients to seek unproven cancer treatment methods. Unfortunately a particular fear seldom verbalized by the cancer patient to which the medical profession should direct its attention was neglected. This is the fear or suspicion that there are effective methods of treating cancer being utilized throughout the world to which patients in the United States are denied access. The unproven method then becomes the unaccepted or inaccessible method. And all too often the decision regarding approval or acceptance of a given agent is not in the hands of the medical profession, but is left to some poorly informed administrative bureaucrat wielding inordinate power.

The editorial also made allusion to features characteristic of proponents of unproven methods, such as isolation from established scientific centers, harboring hostile prejudice, etc. It is a somewhat pontificial point of view to assume that ideas engendered, advanced, and utilized outside of academe are not worthy of open-minded consideration.

The drug Laetrile and its use in the prevention and treatment of cancer seems to be an issue. The specifics of this agent, also known as Amygdalin, do not bear discussion at this point. Suffice it to say that the evaluation of Laetrile on which the Cancer Commission of the California Medical Association in 1953, and the Canadian Medical Association in 1965, based their conclusions was inadequate. To compound the error the U.S. Food and Drug Administration blatantly accepted the scanty information available from these sources and issued the statement that they "saw no competent scientific evidence that Laetrile is effective in the treatment of cancer." Laetrile if nothing else is non-toxic and comparatively inexpensive. When we look at other chemotherapeutic agents, for example Cytoxan, Nitrogen mustard, and methotrexate, and the accepted side effects, nausea, alopecia, vertigo, marrow depression, as well as the cost of treatment, such a statement cannot apply. Yet these drugs are readily available. And does anyone know of a demonstrated cure of a malignant process with any of these agents?

Actually neither Laetrile nor any single cancer treatment modality is at issue. Rather we must deal with the attitude of complacency or resignation that allows us to accept intimidation of our scientific curiosity. There is much to be learned about the treatment of cancer. In spite of the admitted advances in this field, countless patients continue to suffer anguishing pain and death from various malignant processes. In this milieu it is the responsibility of the physician not only to provide adequate support, comfort, and guidance for the terminal cancer patient. He must also maintain within his perspective the realization that ideas even when born from without scientific centers are "innocent until proven guilty", and warrant objective assessment especially by those holding positions of leadership in the field of cancer treatment.

Peter Hairston, M.D.

LETTERS TO THE EDITOR

To The Editor:

I noted with interest Mr. J. C. Moore's article, "Some Thoughts on Socialized Medicine" in the December 1973 issue of the JSCMA, as well as the editorial, "A Little Learning is a Dangerous Thing."

For one so young and inexperienced, he has certainly come up with a most accurate and succinct assessment of things both here and in the United Kingdom.

It was my pleasure to live in England for three years and I have returned a number of times since. My experience certainly corroborates his.

As for the editorial, I can only say that four weeks' study (or ten weeks as the author indicates) may not be sufficient time for a valid judgment, but it is better than no time at all.

Sincerely,
William C. Marett, M.D.

Editor's Note: After a brilliant administrative career in the Medical Corps of the U.S. Air Force, Dr. Marett continues his administrative career as Chief, Adult Health Services, S. C. Dept. of Health and Environmental Control.

Dear Dr. Kimbrough,

Thank you for your kind remarks concerning my article "Some Thoughts on Socialized Medicine," published in your December 1973 issue.

I am pressed, however, to make a few comments concerning your interpretation.

Firstly, as my article states, I spent two and one half months, not four weeks, working in the National Health Service. Whether or not this point is significant I am not sure, but believe warrants mentioning since apparently I need all the experience available.

Re my characterization of our American health system as "a dog-eat-dog system where it's every man for himself." My failure to expand on this point quite rightly leaves room for misinterpretation. I certainly do not mean to implicate private practitioners as the aforementioned mongrels. I am referring to the deficits inherent in a medical system without good comprehensive planning. Health care facilities and research facilities are on their own to raise funds, utilize equipment and manpower, and provide services without effective comprehensive planning to assure maximum efficiency. Prepaid group plans such as the Kaiser program in California have demonstrated that good central planning can save money for both the providers and the providees.

I agree wholeheartedly with you that medical schools need to teach not only basic sciences, but also basic concepts about the framework in which we will someday practice. But we would all benefit from knowing more about alternative plans to what you describe as "the best medical system ever devised by man, the private practice system." If private practice as practiced in this country is best for everyone, why is the U.S. the only major country in the world still clinging to predominantly private, fee for service financing? Its been tried in other countries and been found wanting. Even granting the many wonderful accomplishments of American medicine, are we so naive as to think that improvements can't be made?

Firstly we have to become aware of the shortcomings. Who will doubt that youth and inexperience have often been fertile ground for the growth of new insights into old problems?

CREON You consider it right for a man
of my years and experience
To go to school to a boy?

HAIMON It is not right
If I am wrong. But if I am young and right,
What does my age matter?

Antigone, scene 3, lines 95-101

Sincerely,
Joseph C. Moore, Jr.

Dear Mr. Moore:

Thank you for your recent letter concerning my comments on your article, "Some Thoughts on Socialized Medicine." I have been both congratulated and castigated about my remarks on your very fine article. I suppose it all depends on one's perspective as to how one sees things.

I don't intend to perpetuate a running debate with you although I am certainly glad to hear your opinion at any time. I do want to answer a couple of points that you made in your letter. I am not sure that I agree that the Kaiser-Permanente program that you refer to in California has been demonstrated as being the most economical method of providing medical services. In fact, I have some considerable statistics that indicate that this is, indeed, more expensive than the fee for service type care. One could argue that the provided services are superior under the Kaiser plan but I am not convinced.

The fact that "The U. S. is the only major country in the world still clinging to the predominantly private fee for service financing" does not convince me that we should, therefore, abandon this system. It appears to me that the U. S. is one of the few countries "still clinging" to several very admirable and desirable characteristics. I am still not naive enough to think that improvements can't be made.

Finally, if I appeared to be criticizing either your youth or your experience, then I did not make myself clear at all. It is only with your conclusions that I in any way disagree for, as Goethe said, "The destiny of any nation depends on the opinions of its young men under twenty-five." I have enjoyed hearing from you.

Sincerely,

Edward E. Kimbrough, M. D.

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Based on a review of this drug by the National Academy of Sciences — National Research Council and/or other information, FDA has classified the indications as follows:

Possibly effective: For relief of upper respiratory tract congestion and hypersecretion associated with vasomotor rhinitis and allergic rhinitis, and for prolonged relief.

Lacking in substantial evidence of effectiveness: For relief of nasal congestion and hypersecretion associated with the common cold and sinusitis.

Final classification of the less-than-effective indications requires further investigation.

Contraindications: Hypersensitivity to any component; concurrent MAO inhibitor therapy; severe hypertension; bronchial asthma; coronary artery disease; stenosing peptic ulcer; pyloroduodenal or bladder neck obstruction. Children under 6.

Warnings: Caution patients about activities requiring alertness (e.g., operating vehicles or machinery). Warn patients of possible additive effects with alcohol and other CNS depressants.

Usage in Pregnancy: In pregnancy, nursing mothers and women who might bear children, weigh potential benefits against hazards. Inhibition of lactation may occur.

Effect on PBI Determination and I^{131} Uptake: Isopropamide iodide may alter PBI test results and will suppress I^{131} uptake. Substitute thyroid tests unaffected by exogenous iodides.

Precautions: Use cautiously in persons with cardiovascular disease, glaucoma, prostatic hypertrophy, hyperthyroidism.

Adverse Reactions: Drowsiness, excessive dryness of nose, throat or mouth; nervousness; or insomnia. Also, nausea, vomiting, epigastric distress, diarrhea, rash, dizziness, weakness, chest tightness, angina pain, abdominal pain, irritability, palpitation, headache, incoordination, tremor, dysuria, difficulty in urination, thrombocytopenia, leukopenia, convulsions, hypertension, hypotension, anorexia, constipation, visual disturbances, iodine toxicity (acne, parotitis).

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Lomotil tablets are small, easy to carry and easy to take. They act promptly and effectively. Secondary effects are relatively infrequent and, once the first force of the diarrhea is controlled, maintenance is frequently effective on as little as one fourth of the initial dosage.

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Each tablet and each 5 ml. of liquid contain:
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takes care of the gut issue in irritable colon

IMPORTANT INFORMATION: *This is a Schedule V substance by Federal law; diphenoxylate HCl is chemically related to meperidine. In case of overdosage or individual hypersensitivity, reactions similar to those after meperidine or morphine overdosage may occur; treatment is similar to that for meperidine or morphine intoxication (prolonged and careful monitoring). Respiratory depression may recur in spite of an initial response to Nalline® (nalorphine HCl) or may be evidenced as late as 30 hours after ingestion. LOMOTIL IS NOT AN INNOCUOUS DRUG AND DOSAGE RECOMMENDATIONS SHOULD BE STRICTLY ADHERED TO, ESPECIALLY IN CHILDREN. THIS MEDICATION SHOULD BE KEPT OUT OF REACH OF CHILDREN.*

Indications: Lomotil is effective as adjunctive therapy in the management of diarrhea.

Contraindications: In children less than 2 years, due to the decreased safety margin in younger age groups, and in patients who are jaundiced or hypersensitive to diphenoxylate HCl or atropine.

Warnings: Use with caution in young children, because of variable response, and with extreme caution in patients with cirrhosis and other advanced hepatic disease or abnormal liver function tests, because of possible hepatic coma. Diphenoxylate HCl may potentiate the action of barbiturates, tranquilizers and alcohol. In theory, the concurrent use with monoamine oxidase inhibitors could precipitate hypertensive crisis.

Usage in pregnancy: Weigh the potential benefits against possible risks before using during pregnancy, lactation or in women of childbearing age. Diphenoxylate HCl and atropine are secreted in the breast milk of nursing mothers.

Precautions: Addiction (dependency) to diphenoxylate HCl is theoretically possible at high dosage. Do not exceed recommended dosages. Administer with caution to patients receiving addicting drugs or known to be addiction prone or having a history of drug abuse. The subtherapeutic amount of atropine is added to discourage deliberate overdosage; strictly observe contraindications, warnings and precautions for atropine; use with caution in children since signs of atropinism may occur even with the recommended dosage.

Adverse reactions: Atropine effects include dryness of skin and mucous membranes, flushing and urinary retention. Other side effects with Lomotil include nausea, sedation, vomiting, swelling of the gums, abdominal discomfort, respiratory depression, numbness of the extremities, headache, dizziness, depression, malaise, drowsiness, coma, lethargy, anorexia, restlessness, euphoria, pruritus, angioneurotic edema, giant urticaria and paralytic ileus.

Dosage and administration: ***Lomotil is contraindicated in children less than 2 years old.*** Use only Lomotil liquid for children 2 to 12 years old. For ages 2 to 5 years, 4 ml. (2 mg.) t.i.d.; 5 to 8 years, 4 ml. (2 mg.) q.i.d.; 8 to 12 years, 4 ml. (2 mg.) 5 times daily; adults, two tablets (5 mg.) t.i.d. to two tablets (5 mg.) q.i.d. or two regular teaspoonfuls (10 ml., 5 mg.) q.i.d. Maintenance dosage may be as low as one fourth of the initial dosage. Make downward dosage adjustment as soon as initial symptoms are controlled.

Overdosage: Keep the medication out of the reach of children since accidental overdosage may cause severe, even fatal, respiratory depression. Signs of overdosage include flushing, lethargy or coma, hypotonic reflexes, nystagmus, pinpoint pupils, tachycardia and respiratory depression which may occur 12 to 30 hours after overdose. Evacuate stomach by lavage, establish a patent airway and, when necessary, assist respiration mechanically. Use a narcotic antagonist in severe respiratory depression. Observation should extend over at least 48 hours.

Dosage forms: Tablets, 2.5 mg. of diphenoxylate HCl with 0.025 mg. of atropine sulfate. *Liquid*, 2.5 mg. of diphenoxylate HCl and 0.025 mg. of atropine sulfate per 5 ml. A plastic dropper calibrated in increments of ½ ml. (total capacity, 2 ml.) accompanies each 2-oz. bottle of Lomotil liquid.

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Prophylactically, the ointment may be used to prevent bacterial contamination in burns, skin grafts, incisions, and other clean lesions. For abrasions, minor cuts and wounds accidentally incurred, its use may prevent the development of infection and permit wound healing.

CONTRAINDICATIONS: Not for use in the external ear canal if the eardrum is perforated. This product is contraindicated in those individuals who have shown hypersensitivity to any of the components.

PRECAUTION: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

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SCMA

LEGISLATIVE REPORT

Editor's Note: Read this concise summary of current legislative activity. Notice which legislators are our friends and which are not. Notice and *act* accordingly.
EEK

The first three weeks of the 1974 Legislative Session have been, with one exception, uneventful so far as concerns legislation in which members of the Association are interested. In fact, the Session so far has been pretty uneventful in all respects.

ITEM I. HOUSE BILL NO. 1474 — PHYSICIANS' ASSISTANTS.

This Bill (the one exception referred to above), it will be recalled, was introduced and passed by the House of Representatives in 1973. The House added an amendment at the end of the Bill reading as follows: "*Provided*, however, that under no circumstances will these physicians' assistants be allowed to make a refraction for glasses or give a contact lens fitting."

In the Senate, the Bill was referred to the Committee on Medical Affairs, a hearing was held and it emerged with a majority favorable report. One member, Senator Floyd of Williamsburg, submitted a minority unfavorable report and this put it on the contested calendar where it remained at the close of the Session.

After being passed over once or twice, the Bill was passed on second reading with Notice of General Amendments on January 16th and was taken up on third reading on Tuesday, January 22nd. We had proposed an amendment to the proviso adding immediately after the words "physicians' assistants" the following words "nor any optometrists' assistants." Another amendment to strike the entire proviso was offered by Senators Edwards and Bowen and this was defeated on a voice vote. The other amendment quoted above which had been suggested by the ophthalmologists was introduced by Senators Floyd and Bowen and after considerable debate, the rejection of a similar amendment and a vote whereby that action was reconsidered, their amendment was adopted and the Bill passed on third reading. It went to the House the following day, January 23rd. The House promptly voted concurrence and the Bill was enrolled for ratification. Assuming that it has been signed by the Governor, it, therefore, has become law and assistants to optometrists will be subject to the same restrictions against doing refractions and fitting contacts as physicians' assistants.

ITEM II. HOUSE BILL NO. 2473 — VISION CARE COMMITTEE

This Bill by Representative Campbell, of Greenville, was introduced on January 22nd. Since it carries an appropriation, this was referred to the Committee on Ways and Means. We understand that some effort may be required to obtain action by the Committee and we will be reporting on this further in the near future.

ITEM III. HOUSE BILL NO. 2268 — ABORTION BILL

This Bill which was introduced by Representative Anderson of Florence at the Special Session in September is in the Judiciary Committee of the House. Following the action of your Legislative Committee, the Council and House of Delegates on December 8th and 9th, we contacted Mr. Anderson who immediately agreed to all of the amendments which the Association had proposed and they were promptly prepared by him and added to the Bill. Subsequently, he obtained an opinion from the Attorney General of the State in which he expressed the view that

the provision requiring abortions during the first trimester to be done in a licensed hospital or clinic is in violation of the decision of the U. S. Supreme Court last spring. Mr. Anderson, therefore, introduced a new Bill omitting this provision and somewhat different in its format but including all of the other provisions of his original Bill including the amendment suggested by the Association. This measure (H-2481) also was referred to the Judiciary Committee and he anticipates some difficulty in having it reported out favorably.

On Wednesday afternoon, January 23rd, we conferred with Mr. Anderson and Representative Carroll Campbell of Greenville, and we understand that an effort will be made to have the Anderson Bill transferred to the House Committee on Medical, Military, Public and Municipal Affairs where it can be considered along with another Bill designed principally for the regulation of abortion clinics in the State. Whether or not this can or will be done can not be determined immediately.

ITEM IV. HOUSE BILL NO. 2285 — COMPENSATION OF NURSES

This Bill by Representative Russell remains in Committee but we understand that pressure is increasing for some action on it. The Association's attitude in taking no position on the matter is being followed but information as to any developments will be reported.

ITEM V. ACUPUNCTURE

We were advised two weeks ago that inquiries have been made by members of the Legislature for information concerning this subject and it appears that some Bill to provide for the practice in South Carolina may be introduced. At the request of the Director of the Legislative Council, Mr. Lake, we obtained for him a copy of the Nevada State Law enacted last year. This law provides for licensing in the practice of "Chinese medicine" and does not, as we understand it, relate the practice to the practice of medicine. We discussed this briefly with Chairman Hendrix of the House Committee on Medical, Military, Public and Municipal Affairs, on January 23rd, and feel that any such measure will be given very careful consideration by that Committee, if and when such a Bill is introduced.

ITEM VI. HOUSE BILL NO. 2464 and SENATE BILL NO. 639 — HEALTH INSURANCE POLICIES TO PROVIDE COVERAGE OF NEWBORN CHILDREN

The first of the Bills referred to above was introduced in the House by Representative Carter on January 22nd and referred to the Committee on Medical, Military, Public and Municipal Affairs. The second was introduced by Senator Garrison and referred to the Senate's Banking and Insurance Committee. A third similar Bill (S-644) by Senator Edwards was introduced January 9th and also referred to the Banking and Insurance Committee. This Bill would require that any accident or health insurance policy or prepayment contract providing coverage for newborn children must include such coverage for "congenital anomalies from the moment of birth."

ITEM IX. SENATE BILL NO. 651 — AMBULANCE ATTENDANTS' TRAINING PROGRAM

This Bill by Senators Edwards, Hartnett, Wise, Carter and Doar would authorize MUSC to conduct a continuing training program to qualify ambulance attendants who hold certificates from the State Board of Health to perform a number of additional services. It was referred to the Committee on Medical Affairs.

We have been in attendance at the State House each Legislative Day with the exception of Tuesday, January 29th.

M. L. MEADORS
LEGISLATIVE COUNSEL

MULTIPHASIC SCREENING FOR STATE EMPLOYEES AT STATE PARK HEALTH CENTERS

A pilot Multiphasic Screening Project for state employees was put into operation by the Department of Health and Environmental Control the first of November last year. This project, which has the endorsement of the Columbia Medical Society, is located at State Park Health Center and is offered to state employees in the Midlands area.

The Multiphasic Screening Center does not function as a diagnostic facility. It serves only as a means of bringing to medical attention those persons who have questionable findings. Presently over twenty tests are performed. These include a history; various physical tests, such as height, weight, skin fold measurement, blood pressure, vision, hearing, ECG, spirometry and tonometry; various laboratory tests, including a chemistry profile, TB skin testing and chest X-rays on selected persons. Females also receive a Pap smear and breast exam.

All test data, with the concurrence of the examinee, are sent to his personal physician. This includes not only data felt to fall outside the usually accepted normal limits but that felt to be within normal limits, Thus this testing serves not only to detect early abnormalities but develops baseline test values for future comparison.

Categorical screening (screening for one disease) has been more or less an integral part of public health in South Carolina for many years. Examples are: syphilis serology, TB skin testing, chest X-rays and blood sugar determinations. This Multiphasic Screening Center represents the first major health department effort in the area of multiple testing, albeit similar efforts on a lesser scale are in operation in health departments elsewhere in the state. The project is being closely monitored as to productiveness and actual value.

Presently 15 persons are being screened daily. Through improved procedures and the initiation of an automated record system, it is expected that this number will be increased to 30 per day. The response to the project has been overwhelming. Within the first three weeks of operation it was booked through May 1974 and it was necessary to establish a waiting list.

As of January 21, 1974, 549 persons had been screened; 199 of these had one or more abnormality which were called to the attention of their physician. The following table lists the abnormalities and the numbers of persons for whom they were detected.

Elevated cholesterol	68
Deficient hearing	48
Deficient vision	29
Elevated blood pressure	22
Abnormal resting electrocardiogram	42
Abnormal chest X-ray	17
Elevated blood sugar	13
Elevated BUN	9
Elevated SGOT	4
Low hemoglobin/hematocrit	7
Elevated uric acid	17
Abnormal urinalysis	17
Pap smears	
Positive	0
Inflammatory changes	9
Gonorrhea cultures	
Positive for Gonorrhea	1
Yeast, etc.	5
Decreased pulmonary function	23
Positive TB skin test	27
Elevated intraocular pressure	7

Admittedly, these data are preliminary and figures as to the ultimate use of them by recipient physicians are as yet incomplete. Some of the findings have been of such import as to warrant telephone communications with physicians. Experience to date has revealed excellent cooperation and appreciation of this service by physicians in the area.

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University of Colorado Medical Center

The Cardiac Patient Faces Surgery (Non Cardiac)
Peter C. Gazes, M.D.
Medical University of South Carolina

Drug Interactions
George E. Crevar, Ph.D.
Atlanta, Georgia

Menstral Extraction — The Non Abortion Abortion
Charles King, M.D.
John Hopkins Medical School

Abdominal Masses in Children
Victor Politano, M.D.
University of Miami

MEETINGS

Fourth Post Grad. Course, Head and Neck Anatomy, 28 hrs A.A.F.P. East Carolina University, May 28-31. For information: S. L. Alexander, East Carolina University, Box 2727, Greenville NC 27834

AMA National Conference on the Aging Driver, Howard Johnson Motor Lodge, Washington DC, May 2-4. Attendance limited to 2 representatives per state. For information: SCMA, 1508 Washington St., Columbia SC 29201

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April 25-27, 1974

Guest speakers:

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George N. Wise, Bronx, N.Y.
Guillermo Pico', San Juan, P.R.

Residents and attending staff will also present papers.

Registration fee: $40.00

For additional information, write:

Staff Assistant
Department of Ophthalmology
Medical University of S. C.
80 Barre St.
Charleston, S. C. 29401

The American Association for the History of Medicine will meet in Charleston at the Francis Marion Hotel on May 2, 3, 4, 1974. Interested persons who are not members are invited to attend by payment of the registration fee.

For information write
Joseph I. Waring, M.D.
80 Barre Street
Charleston, South Carolina 29401

Public and Private Mental Health Care—Quo Vadis? Marriott Hotel, Atlanta, April 5-6. Mental health care in the future, Mental health activities in the Southeast, PSROs, Insurance for psychiatric illness.

25th Annual Session, Americal Association for Laboratory Animal Science, Cincinnati Convention-Exposition Center, Cincinnati OH, October 21-25. For information: Joseph J. Garvey, Exec. Sec., AALAS, 2317 W. Jefferson St., Ste. 208, Joliet IL 60435

MEDICAL UNIVERSITY SESQUICENTENNIAL PLANS ANNOUNCED

Beginning with Commencement Day of 1974 and continuing until the same time in 1975, the College of Medicine will celebrate its Sesquicentennial anniversary with a series of events. The observance will call general attention to the past history and the recent progress of the Medical University and bring desirable publicity to the development of the institution. Activities are being planned and coordinated by a Sesquicentennial Committee chaired by Dr. Joseph I. Waring, curator of the Waring Historical Library. Each department in the College of Medicine will have a two-day session with guest speaker on a schedule running from September, 1974 through May, 1975. These sessions will be open to everyone and wide attendance will be invited. During the year there will be a number of meetings of scientific societies which will correlate their sessions with the Sesquicentennial. Those already scheduled are the American Association for the History of Medicine, the South Carolina Surgical Society, the University Surgical Residents, the South Carolina Academy of Sciences, the Whipple Society and the Society of Surgical Chairmen, the Dixie Conference of the American College Public Relations Association, and the Southeastern Chapter of the Biological Photographic Association.

The July 1974 issue of the *Southern Medical Journal* will be devoted to scientific articles written by the faculty of the Medical University and will include a short history of the University. Various exhibits will be set up and an exhibit will travel over the State. There will be a diorama of the earlier school plants and exhibits of rare books and historical items. A tentative plan for an art show at the Gibbes Art Gallery relating to medicine is to be pursued. At the June 1974 commencement four honorary degrees will be presented and at the Founders' Day celebration in November of 1974 ten certificates of merit will be presented. The present thought is that both of these awards will be given to alumni, but other candidates may be considered. Suggestions for appropriate persons are invited. A bronze medallion executed by Mr. Willard Hirsch has been struck and will be used as a souvenir presentation to visiting speakers and various guests and will also be on general sale. A larger version of the medallion, 12″ in diameter, will be placed outdoors permanently on a base in the neighborhood of the Library-Administration Building. An illustrated book of approximately 100 pages is to be published and will contain a history of the Medical College and biographies of certain prominent professors of the earlier days. An historical movie showing the development of the University is in preparation and will be shown throughout the State and on television programs. In anticipation of the celebration of our Sesquicentennial, the Waring Historical Library is using its exhibit case in the hallway of the second floor of the Library-Administration Building to portray historical vignettes of the members of the first faculty of the Medical College. Dr. Thomas Grimball Prioleau, our first Dean and Professor of Obstetrics for over 40 years, was the subject of the first exhibit and Dr. Henry Rutledge Frost, second Dean and Professor of Materia Medica for over 40 years, is in the present exhibit.

The Committee for the Celebration of the Sesquicentennial solicits your interest and assistance in its over-all program which should bring much favorable attention to the Medical University.

ADDENDUM TO SESQUICENTENNIAL PLANNED ACTIVITIES:

The American College of Physicians will have a postgraduate Pulmonary Disease Course on April 21-25, 1975 and there will be a Future of Medicine symposium on May 16, 1975.

Medical University of South Carolina News

A three-year grant of $610,000 establishing the Medical University of South Carolina as a spinal cord injury center has been announced by the National Institute of Neurological Diseases and Stroke.

One of the largest research grants ever received by the Medical University, it will enable promising studies in nerve injuries to move ahead on a broad front.

Persons suffering paralysis of arms and legs from spinal cord injuries, particularly as a result of car accidents, represent a significant proportion of patients in chronic illness category.

Past treatments offered little hope of improvement, but now the study of nerve damage has become "a very exciting and active field", according to Dr. Phanor L. Perot, Jr., principal investigator for the MUSC project. He serves as professor and chairman of the Division of Neurosurgery.

"Certain preliminary findings have indicated it may be possible to stop or modify the progressive nerve damage that starts soon after a severe spinal injury," Dr. Perot reported.

"Promising leads have come from the use of cooling (hypothermia), steroids and certain other drugs which may inhibit the pathological process that destroys spinal cord tissue following injury."

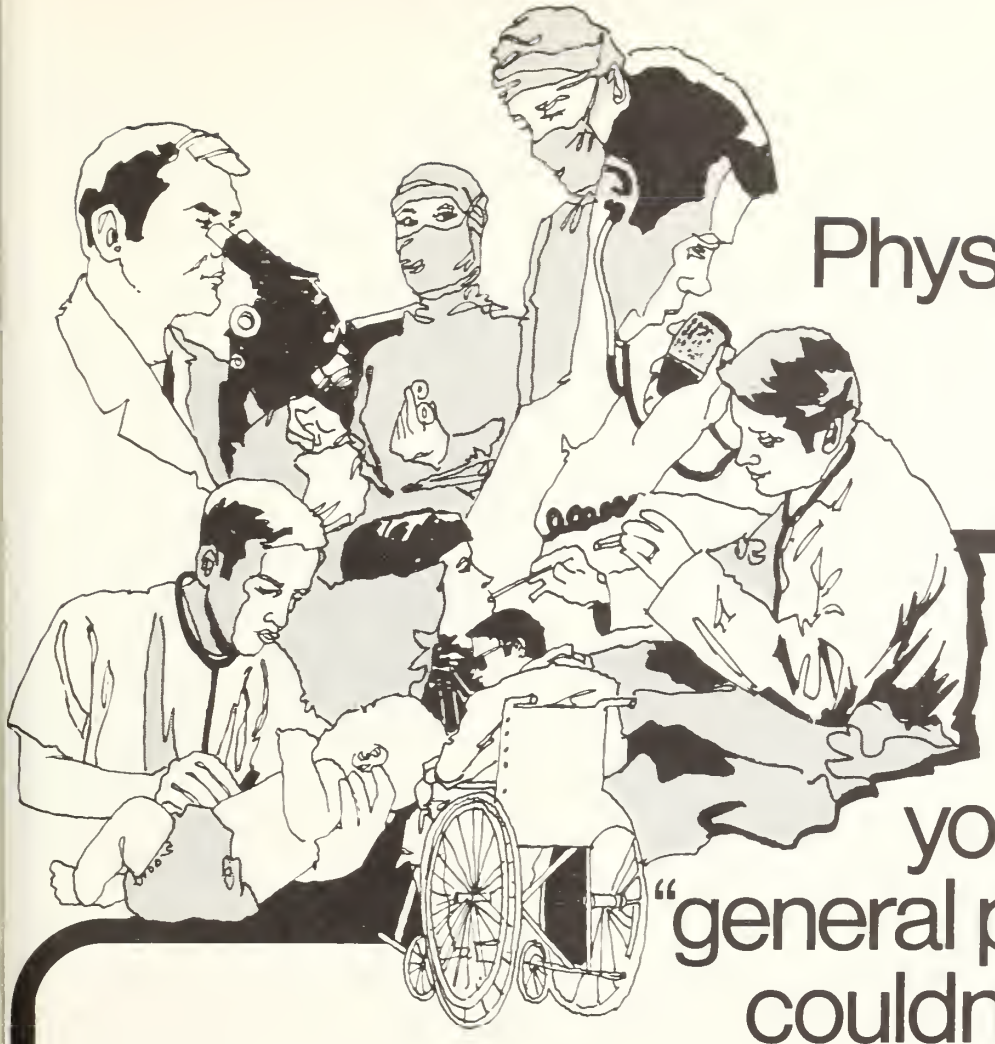
If the studies are successful, funding will be sought to build a major facility for care of the spinal cord injury patient, he said.

The federal award makes MUSC one of five recently established centers in the United States, the others being at New York University, Ohio State University, Yale University and Barrow Neurological Institute in Phoenix. It will support research in five scientific disciplines.

Co-investigators with Dr. Perot will be Dr. Sidney Katz, associate professor of Physiology; Dr. Thomas B. Ducker, associate professor of Neurosurgery; Dr. Herman B. Daniell, associate professor of Pharmacology; and Dr. J. D. Balentine, associate professor of Pathology.

Through laboratory experiments they will study how the spinal cord injury develops with time and how, through the application of drugs and other experimental procedures, the resulting paralysis or nerve damage can be prevented or modified.

The Division of Neurosurgery already maintains a National Spinal Cord Injury Registry which receives a constant flow of data from some 2,000 neurosurgeons in the United States and Canada. The neurosureons, in turn, are kept abreast of developments through quarterly publications of computerized data issuing from here. An important new study at this time, the first of its kind, is the progress of patients a year after their injuries. These results will be measured against those of future treatments.



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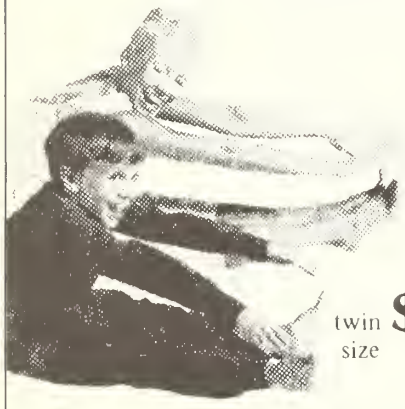
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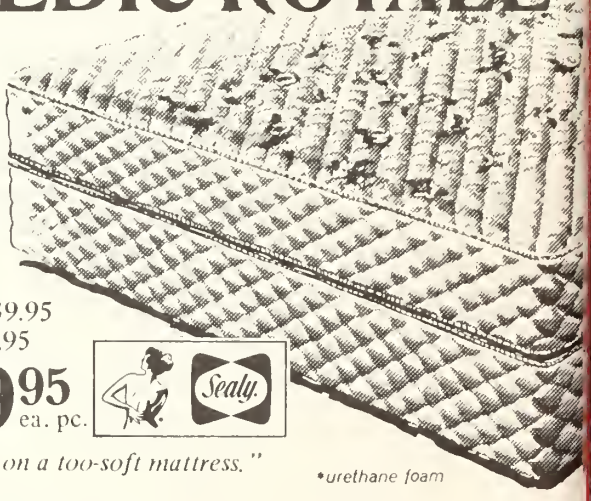
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[redacted]

THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

THE FRANCIS A. COUNTWAY
MAY 7 19

CARCINOMA OF THE BREAST

CLINICOPATHOLOGICAL CONFERENCE

DIALYSIS NURSE

CANCER TOPICS

ANNUAL MEETING 1974

UME 70 APRIL, 1974 NUMBER 4

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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

THE FRANCIS A. COUNTWAY
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When you determine that the depressive symptoms are associated with or secondary to predominant anxiety in the psychoneurotic patient, consider Valium (diazepam) in addition to reassurance and counseling, for the psychotherapeutic support it provides. As anxiety is relieved, the depressive symptoms preferable to it are also often relieved or reduced.

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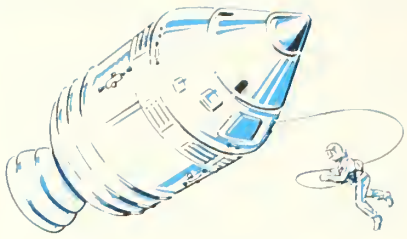
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Precautions: If combined with psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and antidepressants may potentiate action. Usual precautions indicated in patients severely depressed, or with latent depression, with suicidal tendencies. Observe precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association. Business office: 1508 Washington Street, Columbia, South Carolina 29201

Subscription price: $6.00 in the U. S. ($7.00 per year, Foreign). Second Class Postage paid at Columbia, S. C. and at additional mailing offices.

The views expressed in this publication are those of the writers and do not necessarily reflect the opinions of the South Carolina Medical Association.

Contributions of Original Articles

Length—Short articles of about 2,500 words (about 8 typewritten pages, double spaced) are preferred. Longer articles will defer to the shorter ones in schedule of publication.

Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.

Illustrations—Ordinarily publication of 4 small illustrations or the equivalent accompanying an article will be paid for by The Journal. Any number beyond this must be paid for by the author except under unusual conditions. Illustrators should be sent as glossy prints or graphs in black ink with lettering large enough to show after reduction.

References—Should conform to the following order: surname and initials of author, title of article in small letters, name of periodical, with volume, page, month, day of month if weekly, and year—e.g.: Lee, C. S. The heart rhythm following therapy with digitalis. Arch. Int. Med. 44:554, Dec. 1942. They should be listed numerically in order of appearance in the text. Standard abbreviation for journals should be used. Note that periods are not used with these abbreviations as indicated by the Index Medicus. Other abbreviations should be standard—e.g. mg, ml, Gm.

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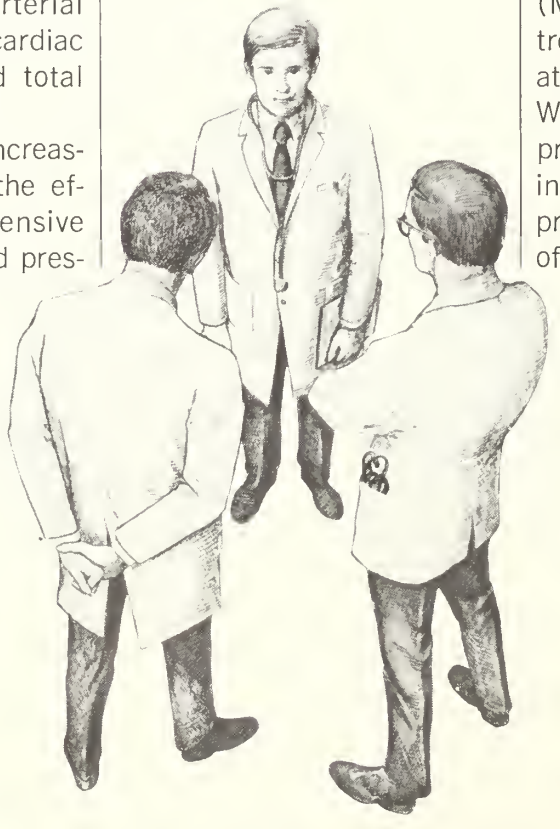
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The more physicians consider the hemodynamics of lowering blood pressure...

Most physicians now agree on the importance of reducing blood pressure in the hypertensive patient. But high blood pressure exists, of course, only as part of a complete clinical picture. The hemodynamic profile of well-established essential hypertension is characterized by elevated arterial blood pressure, normal cardiac output, and increased total peripheral resistance.

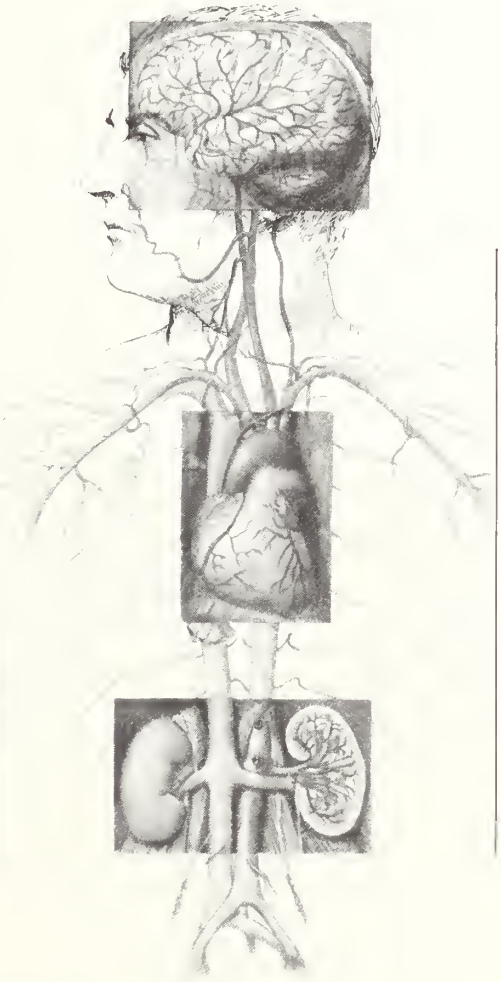
And so, physicians are increasingly concerned with the effects of an antihypertensive agent not only on blood pressure itself but also on the hemodynamic pattern—in short, with the total effect of the drug. *Does* it indeed help lower blood pressure effectively? *Is* peripheral resistance reduced? *Are* cardiac output and renal functions maintained? And, also, is there likely to be drug-induced postural hypotension serious enough to pose a threat to the patient's cerebrovascular status?



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Warnings: Acquired hemolytic anemia has occurred rarely in association with therapy with methyldopa. Should clinical symptoms indicate the possibility of anemia, hemoglobin and/or hematocrit determinations should be performed. If anemia is present, appropriate laboratory studies should be done to determine if hemolysis is present. Evidence of hemolytic anemia is an indication for discontinuation of the drug. Discontinuation of methyldopa alone or the initiation of adrenocortical steroids usually results in a prompt remission of the anemia. Rarely, however, fatalities have occurred.

Some patients on continued therapy with methyldopa develop a positive direct Coombs test; incidence reported has averaged between 10% and 20%. It rarely occurs in first six months of therapy, and if not seen within twelve months, is unlikely to develop with continued administration. Positive Coombs test is dose-related; lowest incidence occurs in patients on 1 g methyldopa or less per day. Reversal of the positive Coombs test occurs within weeks to months after discontinuation of methyldopa. Prior knowledge of a positive Coombs reaction aids in evaluation of cross match for transfusions. Patients with positive Coombs tests at time of cross match may exhibit incompatible minor cross match. When this occurs, an indirect Coombs test should be performed. If negative, transfusion with blood otherwise compatible in the major cross match may be carried out. If positive, advisability of transfusion with blood compatible in major cross match should be determined by hematologist or expert in transfusion problems.

Fever has occurred within first three weeks of therapy, sometimes with eosinophilia or abnormalities in liver function tests, such as serum alkaline phosphatase, serum transaminases (SGOT, SGPT), bilirubin, cephalin cholesterol flocculation, prothrombin time, and bromsulphalein retention. Jaundice, with or without fever, may occur, with onset usually in the first two to three months of therapy. Rare cases of fatal hepatic necrosis have been reported. Liver biopsy in several patients with liver dysfunction has shown microscopic focal necrosis compatible with drug hypersensitivity. Rarely, reversible reduction in leukocyte count with primary effect on granulocytes has been seen; reversible agranulocytosis has been reported. Methyldopa may interfere with measurement of creatinine by alkaline picrate method and of uric acid by phosphotungstate method. When used with other antihypertensive drugs, potentiation of antihypertensive action may occur.

Usage in Pregnancy and Childbearing Age—Not recommended in pregnancy. In women of childbearing age, weigh potential benefits against possible fetal hazards.

Precautions: Perform periodic hepatic function tests and white cell and differential blood counts during first six to twelve weeks of therapy or in unexplained fever. Discontinue if fever, abnormalities in liver function tests, or jaundice appears. Since methyldopa causes fluorescence in urine samples at the same wavelengths as catecholamines, spuriously high levels of urinary catecholamines may be reported. This will interfere with the diagnosis of pheochromocytoma. Discontinue drug if involuntary choreoathetotic movements occur in patients with severe bilateral cerebrovascular disease. Anesthetics requirements may be reduced; hypotension occurring during anesthesia usually can be controlled with vasopressors. Hypertension may occur after dialysis because methyldopa is removed by this procedure.

Dosage should be limited initially to 500 mg daily when following previous antihypertensive agents other than thiazides. Do not exceed recommended daily dose of 3.0 g. Patients with impaired renal function may respond to smaller doses than patients with normal kidney function. Syncope in older patients has been related to increased sensitivity in those with advanced arteriosclerotic vascular disease; this may be avoided by lower doses. Tolerance occasionally seen either early or late, but more likely between second and third month after initiation of therapy; increased dosage or combined therapy with a thiazide frequently restores effective control.

Adverse Reactions: Sedation, usually transient, may be seen during initial therapy or when dosage is increased. Headache, asthenia, or weakness may be noted as early, transient symptoms. Symptoms associated with effective lowering of blood pressure, including dizziness, lightheadedness, and symptoms of cerebrovascular insufficiency, are seen occasionally. Angina pectoris may be aggravated. Symptoms of orthostatic and exercise hypotension may occur; if symptoms occur, reduce dosage. Bradycardia, nasal stuffiness, mild dryness of mouth, and gastrointestinal symptoms including distension, constipation, flatus, and diarrhea occur occasionally; these can be relieved by reducing dosage. Nausea and vomiting have been reported in only a few patients. Sore tongue or "black tongue," pancreatitis, and inflammation of salivary glands may occur.

Weight gain and edema occur infrequently; if edema progresses or signs of pulmonary congestion appear, discontinue drug. Rarely, urine exposed to air may darken due to breakdown of methyldopa or its metabolites. Other rare reactions include breast enlargement, lactation, impotence, decreased libido, skin rash, mild arthralgia, myalgia, paresthesias, parkinsonism, psychic disturbances including nightmares, reversible mild psychoses or depression, reversible thrombocytopenia, drug-related fever and abnormal liver function studies with jaundice and hepatocellular damage (see **Warnings** and **Precautions**), rise in BUN, and a single case of bilateral Bell's palsy.

Supplied: Tablets, containing 250 mg methyldopa each, in single-unit packages of 100 and bottles of 100 and 1000.

For more detailed information, consult your MSD representative or see full prescribing information. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa. 19486

MSD
MERCK SHARP & DOHME

ADDENDUM

Let's make blood pressure "required reading" for all physicians.

With recent estimates that about 23 million Americans have high blood pressure—and that half of them are not even aware of it—detection of the problem in asymptomatic persons has become an issue of national importance.

Family physicians are being urged to take blood pressure readings as a matter of office routine, regardless of the presenting complaint or the reason for the visit. And because many people do not see a family physician for relatively long periods of time, some experts are suggesting that ophthalmologists, gynecologists, dermatologists, orthopedists, psychiatrists, dentists, school nurses, family planning counselors, and other health-care personnel make blood pressure reading a routine part of every examination or consultation.

Of course, a diagnosis of hypertension cannot be made on the basis of a single reading, but routine blood pressure readings can uncover potential trouble in a certain proportion of patients. And when trouble is suggested, further evaluation can be pursued more effectively.



Blood pressure—"required reading" for all physicians.



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HILTON

What's on your patient's face...

may be more important than his chief complaint

Patient P.T.* seen on 3/29/67 shows typical lesions of moderately severe keratoses. Note residual scarring on ridge of nose from previous cryosurgical and electrosurgical procedures.



Patient P.T.* seen on 6/12/67, seven weeks after discontinuation of 5% FU cream. Reaction has subsided. Residual scarring not seen except that due to prior surgery. Inflammation has cleared and face is clear of keratotic lesions.

*Data on file, Hoffmann-La Roche Inc., Nutley, N.J



The lesions on his face are solar/actinic— so-called "senile" keratoses... and they may be premalignant.

Solar, actinic or senile keratoses

These lesions may be called by several names, but they usually can be identified by the following characteristics. The typical lesion is flat or slightly elevated, of a brownish or reddish color, papular, dry, rough, adherent and sharply defined. They commonly occur as multiple lesions, chiefly on the exposed portions of the skin.

Sequence of therapy— selectivity of response

After several days of therapy with Efudex® (fluorouracil), erythema may begin to appear in the area of the lesions; this reaction usually reaches its height of unsightliness and discomfort within two weeks, declining after discontinuation of therapy. This reaction occurs in affected areas. Since the response is so predictable, lesions that do not respond should be biopsied.

Acceptable results

Treatment with Efudex provides highly favorable cosmetic results. Incidence of scarring is low. This is particularly important with multiple facial lesions. Efudex should be applied with care near the eyes, nose and mouth.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thromboeytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)-aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

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Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N J. 07110

This patient's lesions were resolved with Efudex® fluorouracil/Roche®

5% cream/solution...a Roche exclusive

Healing nicely, but it still HURTS



EMPIRIN COMPOUND c̄ CODEINE

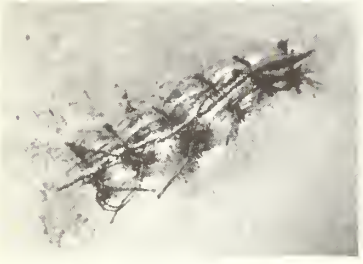
#3, codeine phosphate* (32.4 mg.) gr. ½
#4, codeine phosphate* (64.8 mg.) gr. 1

HERE Burns



When parenteral analgesia is no longer required, Empirin Compound with Codeine usually provides the relief needed.

HERE Sutures



Empirin Compound with Codeine is effective for visceral as well as soft tissue pain—provides an antitussive bonus in addition to its prompt, predictable analgesia.

℞ **prescribing convenience:** up to 5 refills in 6 months, at your discretion (unless restricted by state law); by telephone order in many states.

Empirin Compound with Codeine **No. 3,** codeine phosphate* 32.4 mg. (gr. ½); **No. 4,** codeine phosphate* 64.8 mg. (gr. 1).*Warning—may be habit-forming. Each tablet also contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½.

Wellcome | **Burroughs Wellcome Co.**
Research Triangle Park
North Carolina 27709

Maybe the patient's self-diagnosis is right. He could have hay fever. But that bright red nasal mucosa, along with the thick discharge and excoriation around the nares, strongly suggests that the main problem is a cold. Hay fever or another form of allergic rhinitis may or may not be an underlying factor.

If a complete history and examination rule out allergic rhinitis, the long-term outlook will be a lot more favorable than his own "diagnosis" would have indicated.

But right now, whether he's got allergic rhinitis or a cold, he's suffering from the same irritating symptoms of drip, congestion and stuffiness. Try DIMETAPP EXTENTABS®. They're formulated to relieve these symptoms without much chance of causing drowsiness or overstimulation. Your patients will appreciate the 24-hour relief they can get from just one tablet every 12 hours.

Cold or



Allergy?

Whether it's a cold or an allergy, Dimetapp Extentabs® effectively relieve stuffiness, drip and congestion.

Dimetapp Extentabs®

Dimetane® (brompheniramine maleate), 12 mg.; phenylephrine HCl, 15 mg.; phenylpropanolamine HCl, 15 mg.

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A. H. Robins Company, Richmond, Va. 23220

when pain goes on... and on... and on–



For the patient with a terminal illness, PAIN past, present, and future can dominate his thoughts until it becomes almost an obsession. The more he is aware of the pain he is now experiencing, the more difficult it is to erase his memory of yesterday's pain, and to allay his fearful anticipation of tomorrow's pain.

Surely the last thing this patient needs is an analgesic containing caffeine to stimulate the senses and heighten pain awareness. A far more logical choice is Phenaphen with Codeine. The sensible formula provides ¼ grain of phenobarbital to take the nervous "edge" off, so the rest of the formula can help control the pain more effectively. Don't you agree, Doctor, that psychic distress is an important factor in most of your terminal and long-term convalescent patients?

the analgesic formula that calms instead of caffeinates

Phenaphen® with Codeine

Phenaphen with Codeine No. 2, 3, or 4 contains: Phenobarbital (¼ gr.), 16.2 mg. (warning: may be habit forming); Aspirin (2½ gr.), 162.0 mg.; Phenacetin (3 gr.), 194.0 mg.; Codeine phosphate, ¼ gr. (No. 2), ½ gr. (No. 3) or 1 gr. (No. 4) (warning: may be habit forming)

Indications: Provides relief in severer grades of pain, on low codeine dosage, with minimal possibility of side effects. Its use frequently makes unnecessary the use of addicting narcotics. **Contraindications:** Hypersensitivity to any of the components. **Precautions:** As with all phenacetin-containing products, excessive or prolonged use should be avoided. **Side effects:** Side effects are uncommon, although nausea, constipation and drowsiness may occur. **Dosage:** Phenaphen No. 2 and No. 3—1 or 2 capsules every 3 to 4 hours as needed; Phenaphen No. 4—1 capsule every 3 to 4 hours as needed. For further details see product literature.

Ⓒ III Phenaphen with Codeine is now classified in Schedule III, Controlled Substances Act of 1970. Available on written or oral prescription and may be refilled 5 times within 6 months, unless restricted by state law.

A. H. Robins Company, Richmond, Va. A·H·ROBINS

The Rx that says "Relax"



BUTISOL Sodium provides highly predictable sedative effect: minor dosage adjustments are usually all that's needed to produce the desired degree of sedation. (With 3 dosage forms and 4 strengths to make adjustments easy.)

BUTISOL Sodium offers prompt, smooth, relatively non-cumulative action: begins to work within 30 minutes... yet, because of its intermediate rate of metabolism, generally has neither a "roller-coaster" nor a "hangover" effect.

BUTISOL Sodium is remarkably well tolerated: a 30-year safety record assures you that there is little likelihood of unexpected reactions.

BUTISOL Sodium saves your patients money: costs less than half as much as most commonly prescribed sedative tranquilizers.*

These are four good reasons for prescribing BUTISOL Sodium for the many patients who need to have the pace set just a little slower. Its gentle daytime sedative action is often all that's needed to help the usually well-adjusted patient cope with temporary stress.

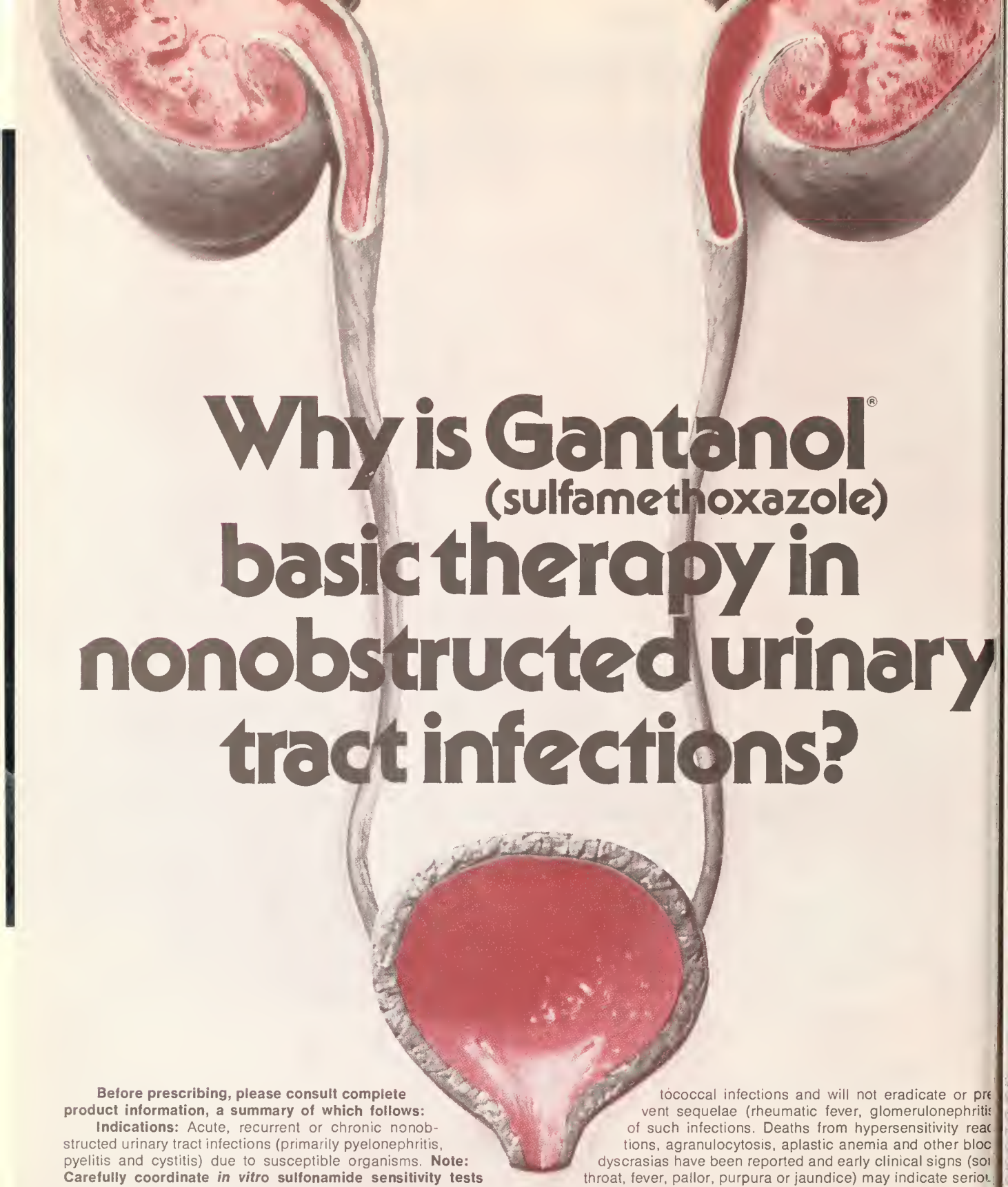
*Based on surveys of average daily prescription costs.

Butisol SODIUM®
(SODIUM BUTABARBITAL)

Contraindications: Sensitivity or idiosyncracy to barbiturates; history of manifest or latent porphyria or marked liver impairment; respiratory disease with dyspnea or obstruction; history of addiction to sedative/hypnotic drugs; uncontrolled pain, to avoid because of possible excitement.
Precautions: Exercise caution in: moderate to severe hepatic disease; anticoagulant therapy, because of possible increased metabolism of coumarin anticoagulants; withdrawal in drug dependence or the taking of excessive doses over a long period, to avoid withdrawal symptoms; elderly or debilitated patients, to avoid possible marked excitement or depression; use with alcohol or other CNS depressants, because of combined effects.
Adverse Reactions: Slight hangover, drowsiness, lethargy, headache, skin eruptions, nausea and vomiting, hypersensitivity reactions (especially in those with asthma, urticaria, angioneurotic edema, or similar conditions).
Usual Adult Dosage: For daytime sedation, 15 mg. to 30 mg. t.i.d. or q.i.d. For hypnosis, 50 mg. to 100 mg.
Available as: Tablets, 15 mg., 30 mg., 50 mg., 100 mg.; Elixir, 30 mg. per 5 cc. (alcohol 7%). BUTICAPS® [Capsules BUTISOL SODIUM (sodium butabarbital)] 15 mg., 30 mg., 50 mg., 100 mg.

McNEIL
McNeil Laboratories, Inc., Fort Washington, Pa. 19034

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Why is Gantanol® (sulfamethoxazole) basic therapy in nonobstructed urinary tract infections?

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Acute, recurrent or chronic nonobstructed urinary tract infections (primarily pyelonephritis, pyelitis and cystitis) due to susceptible organisms. **Note: Carefully coordinate *in vitro* sulfonamide sensitivity tests with bacteriologic and clinical response; add aminobenzoic acid to follow-up culture media. The increasing frequency of resistant organisms limits the usefulness of antibacterials including sulfonamides, especially in chronic or recurrent urinary tract infections.** Measure sulfonamide blood levels as variations may occur; 20 mg/100 ml should be maximum total level.

Contraindications: Sulfonamide hypersensitivity; pregnancy at term and during nursing period; infants less than two months of age.

Warnings: Safety during pregnancy has not been established. Sulfonamides should not be used for group A beta-hemolytic streptococcal infections and will not eradicate or prevent sequelae (rheumatic fever, glomerulonephritis of such infections. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been reported and early clinical signs (sore throat, fever, pallor, purpura or jaundice) may indicate serious blood disorders. Frequent CBC and urinalysis with microscopic examination are recommended during sulfonamide therapy. Insufficient data on children under six with chronic renal disease.

Precautions: Use cautiously in patients with impaired renal or hepatic function, severe allergy, bronchial asthma; in glucose-6-phosphate dehydrogenase-deficient individuals in whom dose-related hemolysis may occur. Maintain adequate fluid intake to prevent crystalluria and stone formation.

Adverse Reactions: *Blood dyscrasias* (agranulocytosis, aplastic anemia, thrombocytopenia, leukopenia, hemolytic anemia, pu

Because it is considered a good choice...

- for efficacy in nonobstructed cystitis, pyelonephritis and pyelitis
- for control of *E. coli, Klebsiella-Aerobacter, Staph. aureus, Proteus mirabilis* and, less frequently, *Proteus vulgaris*
- for prompt antibacterial blood and urine levels in from 2 to 3 hours after initial 2-gram adult dose
- for economical around-the-clock coverage
- for maximum patient cooperation with easy-to-remember B.I.D./T.I.D. dosage

Basic Therapy

Gantanol®

(sulfamethoxazole)

Tablets/Suspension (0.5 Gm) (0.5 Gm/teasp.)

pura, hypoprothrombinemia and methemoglobinemia); *allergic reactions* (erythema multiforme, skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis); *gastrointestinal reactions* (nausea, emesis, abdominal pains, hepatitis, diarrhea, anorexia, pancreatitis and stomatitis); *CNS reactions* (headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo and insomnia); *miscellaneous reactions* (drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon). Due to certain chemical similarities with some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia as well as thyroid malignancies in rats following long-term administration. Cross-sensitivity with these agents may exist.

Dosage: Systemic sulfonamides are contraindicated in infants under 2 months of age (except adjunctively with pyrimethamine in congenital toxoplasmosis).

Usual adult dosage: 2 Gm (4 tabs or teasp.) initially, then 1 Gm *b.i.d.* or *t.i.d.* depending on severity of infection.

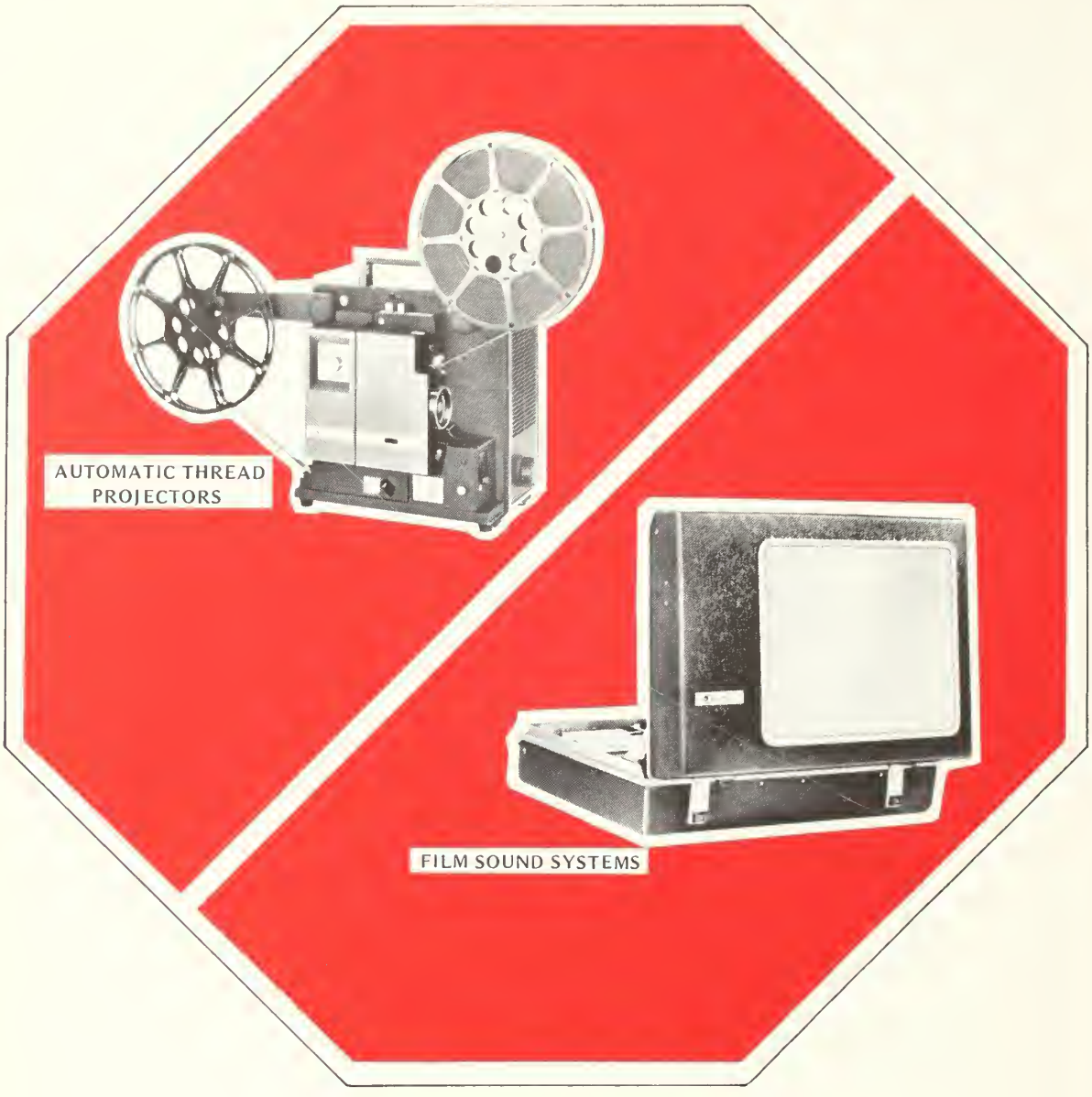
Usual child's dosage: 0.5 Gm (1 tab or teasp.)/20 lbs of body weight initially, then 0.25 Gm/20 lbs *b.i.d.* Maximum dose should not exceed 75 mg/kg/24 hrs.

Supplied: Tablets, 0.5 Gm sulfamethoxazole; Suspension, 0.5 Gm sulfamethoxazole/teaspoonful.

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WHEN YOUR DIGITALIZED PATIENT NEEDS A DIURETIC, SHE NEEDS DYAZIDE®



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DYAZIDE® trade mark

Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

MEETS THE HEARTFELT NEED OF THE DIGITALIZED PATIENT

Before prescribing, see complete prescribing information in SK&F literature or *PDR*. The following is a brief summary.

Indications: Edema associated with congestive heart failure, cirrhosis of the liver, the nephrotic syndrome; steroid-induced and idiopathic edema; edema resistant to other diuretic therapy. Also, mild to moderate hypertension.

Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired. Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (>5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. **Accordingly, check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide,' check serum potassium frequently**—both can cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe patients on 'Dyazide' regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, descreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles and Single Unit Packages of 100 capsules.

SK&F CO.
Carolina, P.R. 00630
Subsidiary of SmithKline Corp.

The Weight of Professional Opinion

It's time for action to defend the laws and regulations that protect your patients against drug substitution.

These professional and trade organizations are united in supporting antisubstitution statutes and regulations:

The American Academy of Dermatology

The Board of Directors of the American Academy of Family Physicians

The Executive Board of the American Academy of Neurology

The Committee on Drugs of the American Academy of Pediatrics

The American College of Allergists

The Executive Committee of the American College of Obstetricians and Gynecologists

The Board of Regents of the American College of Physicians

The Board of Trustees of the American Dental Association

The Board of Trustees of the American Medical Association

The American Psychiatric Association

The Executive Committee of the National Association of Retail Druggists

The Board of Directors of the Pharmaceutical Manufacturers Association

The National Wholesale Druggists' Association



Joint Statement on Antisubstitution Laws and Regulations

The purpose of this statement is to affirm the support of the participating organizations for the laws, regulations and professional traditions which prohibit the unauthorized substitution of drug products.

Traditionally, physicians, dentists and pharmacists have worked cooperatively to serve the best interests of patients. Productive cooperation has been achieved through mutual respect as well as a common concern for the ideals of public service. This mutual respect has been reflected, in part, by joint support over the years for the adoption and enforcement of laws and regulations specifically prohibiting unauthorized substitution and encouraging joint discussion and selection of the source of supply of drug products. The basic principles of medical, dental and pharmacy practice are thus utilized and preserved in the interest of patient welfare.

The antisubstitution laws have not obstructed enhancement of the professional status of pharmacy any more than they have in and of themselves guaranteed absolute protection from unsafe drugs, or freed physicians, dentists and pharmacists from their responsibilities to patients. As a practical matter, however, such laws and regulations encourage interprofessional communications regarding drug product selection and assure each profession the opportunity to exercise fully its expertise in drug usage, to the advantage of patients.

Physicians and dentists should be urged to increase the frequency and regularity of their contacts with pharmacists in selection of quality drug products, recognizing that economies to patients can be improved through such communication, taking into account the patients' needs. The pharmacist's knowledge of the chemical characteristics of drugs, their mode of action, toxic properties and other characteristics that assist in making drug selection decisions should be utilized to the fullest extent practicable by physicians and dentists in serving their patients.

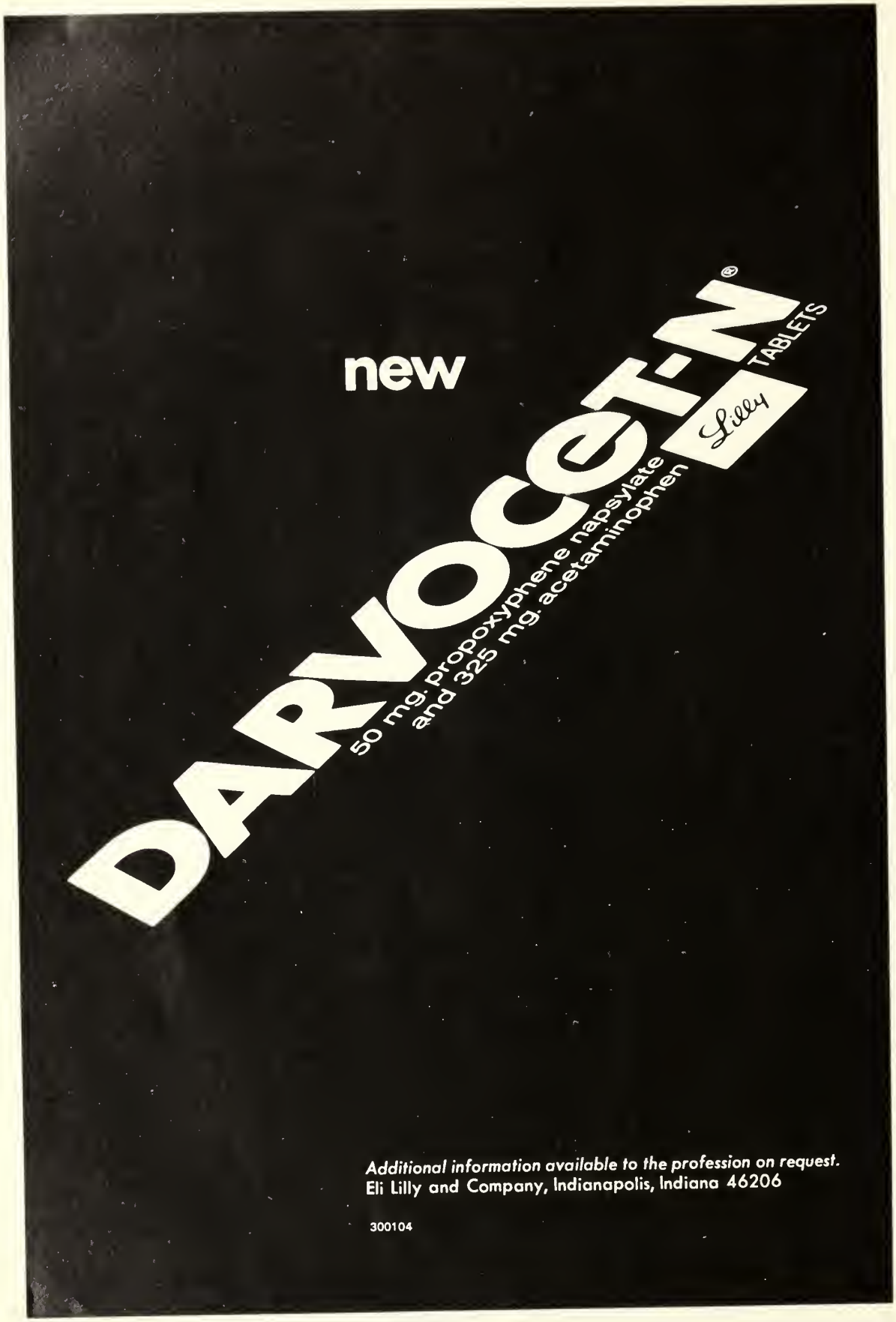
Since drug product selection entails knowledge derived from clinical experience, the physician's and dentist's roles in product selection remain primary and do not permit delegation of decisions requiring medical and dental judgments. A broader role in therapy will evolve for pharmacists as improved understanding and cooperation among the professions continue to grow.

There has been no evidence that there are convincing reasons to modify or repeal existing laws and regulations prohibiting the unauthorized substitution of another drug product for the one specified by a prescriber. It is our belief that such laws and regulations merit the joint support of the medical, dental and pharmaceutical professions and the pharmaceutical industry.

Add your opinion to the weight of other professionals and send it to your state assemblyman or legislator.

Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W., Washington, D.C. 20005

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THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 70 APRIL, 1974 NUMBER 4

OCCULT CARCINOMA OF THE BREAST

GEORGE RANDOLPH MARTIN*

The diagnosis of occult carcinoma of the breast by examination of an axillary mass was first described in the United States by Halstead[1] in 1907 and in England by Cameron[2] in 1909. Each series consisted of three patients who presented with an axillary mass, which on histological examination showed metastatic breast cancer in a lymph node, but who had no clinically evident primary source. Each article contained the recommendation that an ipsilateral radical mastectomy be performed. As the number of reported cases has recently passed 100, analysis of the disease and of the mode of therapy takes on new significance. The largest and most thoroughly evaluated series are those of Haagenson[3] with 18 cases, from the Mayo Clinic[4] with 25 cases, the M. D. Anderson Hospital[5] with 18, and the University of Pennsylvania[6] with 11. Radical mastectomy with or without radiotherapy was the treatment followed in each study. One British report[7] describes several cases of women, who present with only an axillary mass, on which neither biopsy nor excision was undertaken. Each patient was examined periodically until a clinical sign of breast neoplasia appeared. The usual latent period was 2-6 years, however, one woman who was 33 years old at the discovery of the axillary mass was followed 18 years until clinical evidence of a breast mass developed. A mastectomy was done and the patient was alive and well one year later.

Much less controversy in therapy exists when the histological diagnosis of the presenting node is definitely of breast tissue origin. In the M. D. Anderson study,[5] 12 surgical mastectomy specimens were examined of women whose only sign of cancer was an enlarged axillary lymph node, 8 of which were taken prior to radiation therapy. Four of these 8 showed invasive breast carcinoma, I had intraductal carcinoma only, 2 had invasive and intraductal carcinoma plus lobular carcinoma in situ, and in 1 specimen no carcinoma was found. Of the 4 specimens taken after irradiation, 2 showed carcinoma, and 2 did not. Of the 13 patients whose disease was discovered 5 or more years ago, 9 were treated with radical

*This work was prepared while serving a preceptorship under Dr. Daniel L. Maguire, Jr., as part of the Core Surgery Rotation at the Medical University of South Carolina, Dr. Paul H. O'Brien faculty co-ordinator.

mastectomy and radiotherapy and 8 were alive beyond the fifth post operative year. Of the 4 who were treated only with radiotherapy, all died with the disease in less than 4 years time.

A Brooklyn, N. Y.[8] study showed that 7 of 21 patients who presented with metastatic disease in axillary lymph nodes were males. None of the male patients had carcinoma of the breast; 4 had carcinoma of the lung, 1 had carcinoma of the colon, 1 had carcinoma of the stomach and 1 had tumor cells compatable with amelanotic melanoma. Four of the 14 female patients did not have breast carcinoma, 1 had carcinoma of the pancreas, 1 had carcinoma of the lung, 1 had carcinoma of the stomach and 1 had no evidence of a primary after 2 years of observation.

The difficulty of finding the primary site even when the lymph node metastasis is breast carcinoma was made evident in the Mayo study[4] of surgical mastectomies. Twenty had primary lesions less than 1 cm in diameter, 14 of which were less than 0.5 cm in diameter. Five primaries were larger than 1 cm, none was larger than 2 cm, and in 10 specimens no primary was found. In the M. D. Anderson study,[5] 17 of 18 patients received mammography. Nine of the patients had negative initial mammograms, 4 of these turned positive after 2 to 10 months and 5 remained negative. Six patients had positive initial mammograms and 2 patients were intermediate.

Analysis of the Mayo series[9] histologically showed 11 of the 25 carcinomas to be of the comedocarcinoma variety and 7 to be medullary adenocarcinoma variety and 7 to be medullary adenocarcinoma. Only 3 patients had scirrhous carcinoma and the 4 other patients had 4 other different types. The less aggressive nature of the 2 predominating varieties was offset by the fact that 60 per cent were Broder's Grade IV, 32 per cent were Grade III, 8 percent Grade II, and none Grade I. The Pennsylvania group of Dr. Fitts[6] reported 8 of their 11 cases to be in the left breast, while no other study mentioned a predominant side.

A similar presentation is made by the patient with carcinoma of aberrant axillary breast tissue. In the 2 patients reported by Dickenson,[10] the diagnosis of carcinoma of aberrant axillary breast tissue was made after excisional biopsy and neither patient had a radical mastectomy. Neither patient had evidence of metastasis medially into the true breast or systemic metastasis. One case was an adenocarcinoma, the other a scirrhous type. Though carcinoma of supernumerary breasts is rare, aberrant axillary placed breast tissue may be more susceptible to carcinoma, according to Cogswell and Czerny[11] who reviewed several series of patients including those of DeCholnky[12] who found that 3.8 per cent of aberrant axillary breast tissue removed surgically showed foci of carcinoma in addition to fibrocystic disease, chronic mastitis, etc.

The case summaries presented contained 2 reports of the same histological type as our case. One report[9] was of a 44-year-old female who had a 3 by 4 cm axillary mass for 5 months prior to surgery. The mastectomy specimen revealed 2 central nodules, 0.5 cm each, of Grade IV adenocarcinoma. The patient did well and follow-up visits were negative. Another report[13] was that of a 60-year-old woman who had an axillary node biopsy to show undifferentiated adenocarcinoma. No further treatment was given until 1 year later when a mass was found in the ipsilateral breast. Despite radiotherapy, the patient developed massive metastasis and died within the year.

CASE REPORT

A 53-year-old white housewife presented 2 weeks prior to hospitalization with a tender 2 cm by 3 cm mass which was felt to be either in the axillary tail of the left breast or in the Level I lymph nodes. Aspiration at the first presentation failed to yield a diagnosis. The patient gave a history of mild transient parethesias and numbness in her left arm for 6 months. She attributed these to fatigue following heavy yard work and gardening, and did not seek medical attention. After hospitalization, she underwent an

excisional biopsy which was reported to show a lymph node with metastatic poorly differentiated adenocarcinoma of possible breast origin (See Figure 1). The patient had no knowledge of any family members who had had breast cancer. She had 3 pregnancies and has 3 children, the first of whom she breast fed for 1 year. She had a hysterectomy in 1965 for dysfunctional bleeding after estrogen therapy failed to regulate her cycles. Both breasts displayed multiple nodularity though no dominant mass was found and no axillary, supraclavicular or inguinal lymph nodes were palpably enlarged. There were no skin changes or nipple discharges. The patient underwent mammograms, chest x-rays, upper and lower GI series, oral Cholecystograms, and an IVP, all of which failed to show a possible primary site of the carcinoma. At this point, she was seen by Dr. Paul O'Brien, Director of the Cancer Clinic at the Medical University of South Carolina, who agreed that a mastectomy was the treatment of choice. A classical left radical mastectomy was performed. A 6 cm by 4 cm hard, gritty, mass was growing around and firmly attached to the axillary artery and vein, and to the medical cord of the brachial plexus. An attempt was made to remove the mass, which later proved to be lymph nodes filled with metastatic carcinoma, but it is doubtful that the mass

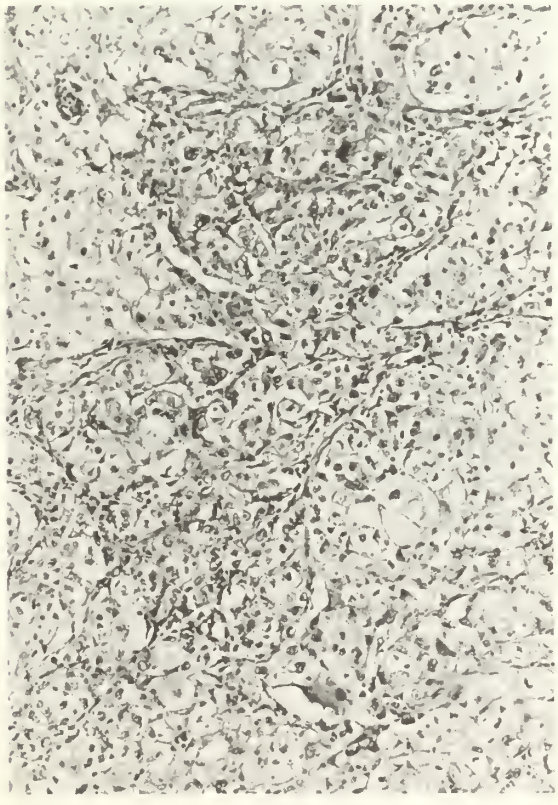


Figure 1



Figure 2

was entirely removed. On examination of mastectomy specimen, a 1.6 cm by 1.5 cm by 1.0 cm stellate focus of primary carcinoma of the breast was found 1.5 cm beneath the surface extending from beneath the nipple into the superior quadrant. Fibro-cystic changes were present throughout the breast (See Figures 2 and 3). The incision was closed with a skin graft from the patient's right thigh. The patient was discharged from the hospital 10 days later in good condition and with a viable graft. The left arm had good postoperative motor, sensory and vascular functions, with no edema and good pulses.

DISCUSSION

The finding of metastatic carcinoma in an axillary lymph node is sufficient reason for an ipsilateral radical mastectomy, if routine lung, renal and GI studies fail to show a primary site of carcinoma. Negative mammograms should not be allowed to delay the surgery. Even retrospectal examination of our mammograms failed to show the tumor. Radiotherapy should be considered and the facts of each case should be presented to the nuclear medicine specialist. A contralateral mastectomy may be considered on the basis of fibrocystic disease and its association with in-

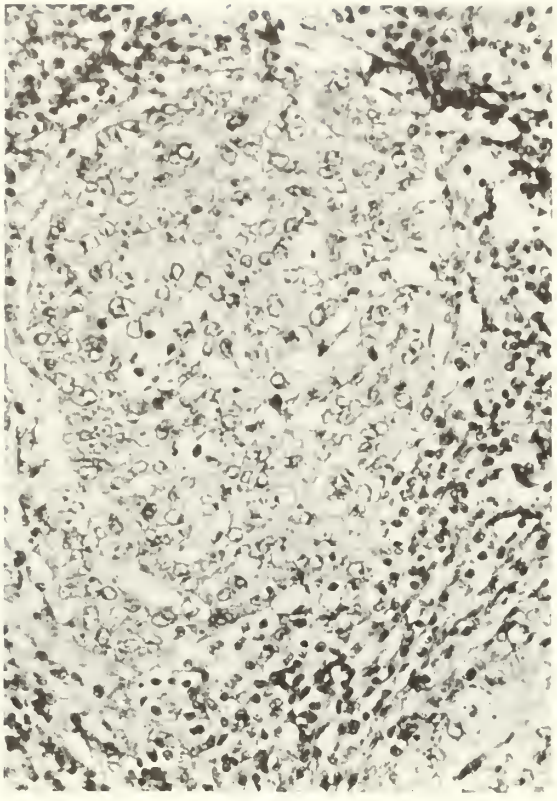


Figure 3

creased risk of carcinoma.[14] The patient will be observed closely for signs of metastasis, because the nodes around the axillary vessels and nerves, which in retrospect were causing her left arm paresthesias, were probably not completely removed.

SUMMARY

A patient who presents only with an enlarged axillary node deserves to have a biopsy, as approximately 10 per cent are lymphomas and 14 per cent contain metastatic carcinoma, usually from the ipsilateral breast.[15] Mammograms fail to show the primary source in approximately one half of the breasts in which a primary is discovered on histological examination of the mastectomy specimen. Delay in performing definitive surgery could be costly as the vast majority of tumors which present this way are poorly differentiated and the prevention of spread beyond the axillary lymph nodes should be the prime concern of each surgeon.

Much appreciation must go to Drs. Albert Kreutner and Mike Hughson, Department of Pathology, Medical University of South Carolina, for their help in the case and report preparations, including the photographs.

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CLINICOPATHOLOGICAL CONFERENCE

OF

THE MEDICAL UNIVERSITY OF SOUTH CAROLINA

"A Young Man with Recurrent Hemoptysis and Renal Failure"

CLINICIAN: Andrew M. Munster, M. D.
RADIOLOGIST: Charles N. Griffin, Jr., M. D.
PATHOLOGIST: Jane T. Gaede, M. D.

Prepared by
H. RAWLING PRATT-THOMAS, M. D.
JANE K. UPSHUR, M. D.

The patient was a 24-year-old white male who was transferred from his local hospital to the Charleston Veterans Administration Hospital on October 9, 1972, for evaluation of anemia and hematuria. The patient dated the onset of his present illness to three months prior to admission, when he began having blood tinged sputum without associated symptoms. Three days prior to admission he developed pain in the chest, abdomen, and back, shortness of breath, weakness, and dizziness. He then vomited copious amounts of bright red blood and was taken to his local hospital. He was found to have a hemoglobin of 9.0 grams and urinalysis showed gross blood and numerous RBC casts as well as 4 plus albumin. An upper gastro-intestinal series showed a small hiatal hernia. The barium enema was normal. Intravenous pyelography showed thickening of the renal cortices. Chest films showed pulmonary vascular stasis. The patient was then transferred to the Charleston Veterans Administration Hospital.

Past medical history revealed that the patient had had frequent upper respiratory infections and sore throats until age 18, when he had a tonsillectomy. There was also a history of epistaxis while he was in service in Viet Nam in 1969. The patient's mother related the history that the patient had passed blood in his urine at age 2 or 3 years, but the father cast doubt on this information. His mother had kidney stones, grandfather had diabetes and heart trouble. The patient stated that he had gained approximately fifty pounds in weight during the past year although he did not think his appetite had increased greatly. He also stated that he had frequent frontal headaches, especially in the afternoons.

Physical examination on admission revealed a well nourished, well developed white male in no acute distress. Vital signs were: blood pressure 110/76, temperature 100.0°, pulse 88 and respirations 18. Auscultation of the lungs and heart disclosed bilateral basilar scattered rales, an S4 gallop and a Grade II/IV systolic murmur along the left sternal border. The liver edge was palpable 2 cm below the right costal margin. The prostate was described as slightly enlarged and boggy. Laboratory data: Hgb 9.9 gms, Hct 27 per cent, WBC 6900 with 62 polys, 32 lymphs, 1 eosinophile, and 5 monocytes. Platelet count 392,000. Serum creatinine 2.2 mg/100 ml, BUN 28, LDH 340 (nl 100-225). Urine was yellow, cloudy, with specific gravity 1.014, ph 6, protein 2 plus, occult blood 4 plus, microscopic 2-6 WBC and 75-100 RBC/hpf. Urine protein ex-

cretion was 140 mg/100 ml initially, increasing to 330 mg/100 ml near the end of the patient's hospital course. The antinuclear factor, LE preparation and C reactive protein were negative. Immunoelectrophoresis showed normal levels of IgA, IgM and IgC. Serum complement C3 was normal. Serum protein electrophoresis showed a slight relative elevation of the alpha 2 fraction. Total protein was 6.3 mg/100 ml and albumin 3.5 mg/100 ml.

Hospital Course: The patient's hemoglobin dropped steadily over the first week of hospitalization, reaching 6.8 grams on October 17, after which he was given one unit of packed cells and one of whole blood. He continued to complain of nausea and vomiting. Renal biopsy was considered but this procedure was declined by the patient. By October 20 the creatinine had risen to 4.6 and the BUN to 45 mg/100 ml. At the suggestion of the renology consultants, the patient was begun on Prednisone, 15 mg q.i.d. on October 23, and Cytoxan, 50 mg qd, was started two days later. An intravenous pyelogram was reported as showing no lesions. The patient experienced some subjective improvement, thought to be caused by the Prednisone, but urea nitrogen and creatinine continued to rise. Hyperkalemia also developed and was treated with Kayexalate. A steady increase in the patient's weight was recorded, from 172 pounds on October 26 to 194 pounds on November 15. It was decided that hemodialysis would probably be necessary and on November 17 the patient was taken to the operating room where a Scribbner AV shunt was inserted in the left forearm. At this time the creatinine was 12.6 and the blood urea nitrogen was 196 mg/100 ml. Early in the morning on November 18 the patient began coughing up copious amounts of bright red blood and rales were heard over both lung fields. At 8 a.m. the patient was taken to the renal dialysis unit for immediate hemodialysis. After approximately fifteen minutes of dialysis the patient's blood pressure began to fall steadily as bleeding from his respiratory tract increased. He then underwent cardiorespiratory arrest and in spite of prolonged and vigorous efforts he could not be resuscitated. He was pronounced dead at 10:20 a.m. on November 18, 1972.

Dr. Munster: Our patient this afternoon was a 24-year-old white male who presented initially with hemoptysis. His pulmonary problems lasted for approximately 3 months before documented renal symptoms began. He has a history of frequent upper respiratory infections, positive family history for diabetes and, on admission, for hemoptysis and renal failure; he is normotensive which I think is important. Perusing the laboratory data we noted he was severely anemic with a hemoglobin of 9.9 gm, hematocrit of 27 and a normal platelet count. The BUN is slightly elevated as is the serum creatinine. He has protein in his urine. His serum immunological tests such as anti-nuclear factor, LE preparation and immunoglobulin and complements are negative or normal. After admission his renal function deteriorates rapidly to a point where dialysis has to be considered. He refuses permission for renal biopsy and just as dialysis is instituted he died of a massive pulmonary hemorrhage. We have therefore a young man with a history of recurrent upper respiratory infection who presents with about a 3 month history of progressive pulmonary problems with hemoptysis, marked anemia and then the onset of rapidly progressive renal failure with the creatinine rising from 2.2 mg to 12.6 mg in a period of about five weeks. Thus we have this duality of pulmonary hemorrhage and renal failure and it is to these two problems that we have to direct our differential diagnosis. We have to decide whether he has a particular syndrome or does he have separate diseases one complicating the other. The first differential diagnosis I would like to consider is a straightforward acute glomerulonephritis with pulmonary congestion or pneumonia. Acute glomerulonephritis may be accom-

panied by pulmonary changes with congestion and intra-alveolar hemorrhages, usually associated with hypertension with or without ventricular failure. Now this young man did have rales in his lungs and he does have some x-ray evidence of pulmonary congestion as well as a palpable liver. However, he does not have any evidence of hypertension nor has it ever been documented in his history. He does not have cardiomegaly nor obvious evidence of left ventricular failure. Furthermore the hemoptysis you would expect in this sort of situation is mild. It does not produce a fatal hemorrhage, nor chronic hemoptysis of such magnitude that would lead to a severe anemia, if one accepts the pulmonary hemorrhage as the cause of his anemia. So acute glomerulonephritis with pulmonary congestion is a possibility, but not likely. The next group of diseases we need to consider is the broad group of collagen diseases, particularly Wegener's granulomatosis. Now these diseases are systemic ones which can involve both the kidney and the lung. I will not attempt to cover the entire gamut of these diseases, considering Wegener's the one that would be most likely to produce this picture. This would be an appropriate time for Dr. Griffin to present the radiologic findings.

Dr. Griffin: We have a series of four chest x-rays on this patient beginning on the 7th of October and ending on the 31st of October. Unfortunately there were no more films prior to his death on the 18th of November. In the initial film there is an extensive increased density over the bases of both lung fields. This is a patchy, coalescing infiltrate which has the typical appearance of intra-alveolar material. It could be simply a bilateral basilar pneumonia, a little unusual in its overall configuration. It could also quite readily be extensive bilateral pulmonary hemorrhage, which I am sure it was. Purely on the basis of the films alone, alveolar proteinosis could give an appearance like this and pulmonary edema might although it is usually more centrally placed and higher in the lung fields. I do not see any vascular congestion nor free fluid in the pleural spaces. With the history of hemoptysis the first consideration would be intrapulmonary hemorrhage. There is evidence of some clearing in the two day period between the two hospital admissions and then in the two succeeding films there are no abnormal findings whatsoever. The heart silhouette and pulmonary vascularity are normal. Two intravenous pyelography films show a prompt bilateral excretion of contrast material which tells us we have functioning kidneys with equal concentration of contrast material, normal renal outlines and normal calcyces. There is nothing to suggest unilateral renal disease, chronic pyelonephritis or other type of chronic renal disease which might cause scarring and reduction in size of the kidney.

Dr. Munster: Certainly the chest x-rays show nothing suggesting Wegener's granulamatosis which characteristically presents as rapidly cavitating nodular lesions. Furthermore other manifestations of this group of diseases characterized by vascular injury such as arthropathy, and serositis are lacking. The LE test is negative so I think we can eliminate polyarteritis and lupus as well as Wegener's granulomatosis. Could he have a straightforward pneumonia with a super-imposed nephritis? It is an awfully long course for an ordinary bacterial pneumonia, the hemoptysis is much more fulminant than would be expected, and the pulmonary roentgenograms do not support such a process. Finally one has to consider uremic pneumonitis. Uremia makes an individual susceptible to a varied assortment of pneumonitidies. The manner of onset of this illness militates against such a notion. The patient didn't come in with renal failure, he came in with pulmonary problems and was not uremic at that time. The massive pulmonary hemorrhage that eventually killed him is certainly not characteristic of a uremic pneumonitis. So we come down to the diagnosis that I think is the

most likely and that is Goodpasture's syndrome. Goodpasture's syndrome is not a new disease, but uncommon and relatively unique because it is an immunological disorder that embraces both the lungs and the kidneys in a common pathogenesis. One is not the complication or sequelae of the other. They occur together with both the kidney and the lung being attacked by the same immunological mechanism. Clinically Goodpasture's syndrome is a progressive necrotizing proliferative glomerulonephritis associated with pulmonary hemorrhage. This is the clinical definition. It has been amply demonstrated that antibodies are formed against the renal glomerular basement membrane, which has become antigenic. This is the basic lesion, this antibody being deposited in the glomeruli causing renal disability. The same antibodies also attack the alveolar membranes of the lung causing disruption and the sort of massive bleeding and that leads to death in the majority of these patients. Why this should be so is not entirely clear, but the simplest explanation is that non-specific cross-reacting antibodies injure both the glomerular and alveolar basement membrane. Clinically the course of Goodpasture's syndrome is exactly as we have seen in this case. It is a disease of young adults and it usually leads to death within a few months almost always from pulmonary hemorrhage. There is always accompanying glomerulonephritis that leads to renal failure. Control of this disease with steroids and immunosuppressive agents has been very unreliable and most unsuccessful. Removal of the antigenic stimulus by nephrectomy has been proposed. In fact five cases of bilateral nephrectomy followed by renal transplantation have been reported and out of the five, four have survived, which is much better than the results with other modes of therapy. Once the body has metabolized the antibody complexes following removal of the offending antigenic renal basement membranes, the pulmonary symptomatology has reversed itself amazingly. The patients still have trouble after nephrectomy presumably because circulating anti-glomerular basement membrane antibodies are still present but usually are controlled with steroids. So it seems that after the diagnosis has been made, the only reasonably effective method of treatment is to do a bilateral nephrectomy. In a terribly ill individual this is not something any surgeon would undertake lightly. The first thing we must have is a reliable diagnosis of Goodpasture's syndrome. We do not have such a diagnosis in this young man because he refused renal biopsy. If he had had a renal biopsy I would expect to see the classical immunofluorescence change in his kidneys, namely the linear deposition of IgC antibody along the glomerular basement membranes with some immunofluorescence staining for complement also. If these characteristic findings had been present I would have recommended bilateral nephrectomy and that he be carried on dialysis until he got better and then have a renal transplant.

Dr. Munster's Clinical Diagnosis: Goodpasture's Syndrome.

Dr. Gaede: Fortunately because of the intense clinical interest in this patient and the fact that he did not consent to renal biopsy during life, autopsy was done within a few hours following his death so as to obtain kidney tissue for study with immunofluorescence techniques as well as electron microscopy. This patient's lungs were certainly heavy, weighing 1250 gm and were quite firm and diffusely hemorrhagic. Frothy bloody fluid was present in the tracheo-bronchial tree. The whole lung is discolored a diffuse dark reddish color and there are patchy areas where there are gross areas of hemorrhage present. The original description of this syndrome by Ernest Goodpasture appeared in the *American Journal of The Medical Sciences* in 1919 in which he gives a very graphic description of the appearance of the lungs in one of his original cases stating "The lung gives the impression of

having been injected with blood through the bronchi so that the air spaces were filled." This is actually the picture we see microscopically in these lungs (Fig. 1). The majority of the alveolar spaces are filled with fresh blood as you would expect from his clinical history of having a massive terminal hemotysis after dialysis was begun. In addition to the large amount of fresh hemorrhage which we see present throughout the lungs there are also large amounts of dark pigment which prove to be hemosiderin with appropriate stains and indicate the chronic recurrent nature of the hemorrhage as well as the fresh terminal event (Fig. 2). The kidneys in these patients are described as being typically pale and swollen with numerous petechial hemorrhages over the external surface of the kidney (Fig. 3). The characteristic pathologic finding in Goodpasture's syndrome is a very diffuse involvement of almost all the glomeruli with sclerosis and obliteration accompanied by extensive proliferative epithelial crescent formation. If a renal biopsy is done early in the patient's clinical course, only focal glomerular lesions may be observed but the terminal fully developed disease pattern is much more diffuse. Epithelial crescent formation is conspicious with Bowman's space being filled by extensive epithelial proliferation about the glomerular tuft (Fig. 4). This lesion is seen in varying degrees of severity in most of the glomeruli throughout the kidney. The stimulus of this marked proliferation of the epithelium here is not precisely known. It has been hypothesized that this is a response to the irritation of blood and protein in Bowman's space. Pseudo-tubule formation can be found which is a manifestation of the later progressive stages of

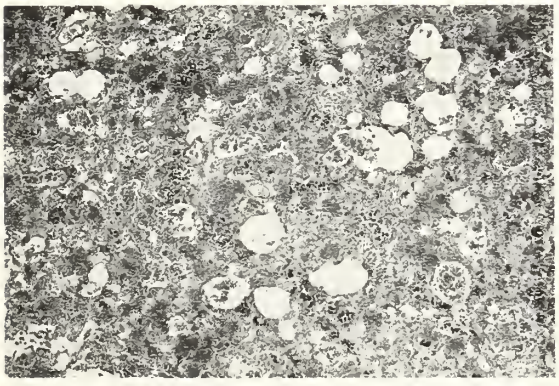


Fig. 1 Low power view of lung showing effacement of normal appearance by copious, diffuse intra-alveolar hemorrhage.

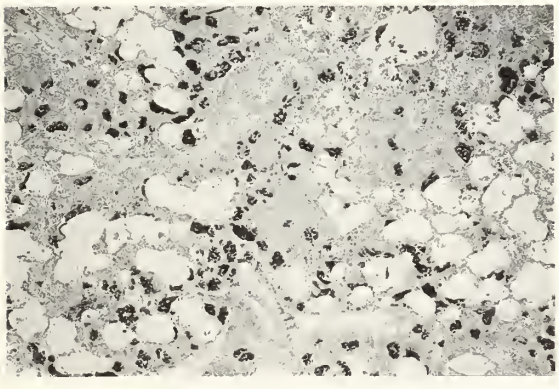


Fig. 2 Section of lung showing numerous dark granular deposits of hemosiderin indicative of chronic recurrent hemorrhage.

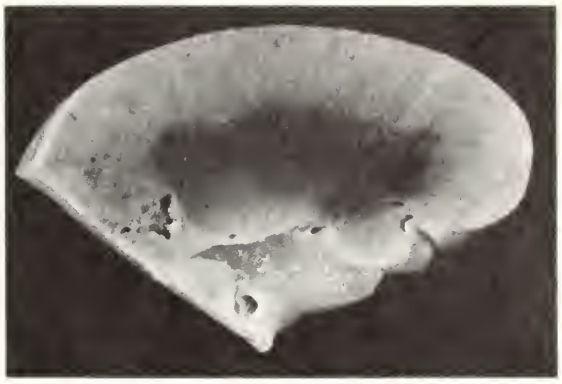


Fig. 3 Section of pale, swollen kidney with focal cortical hemorrhages.

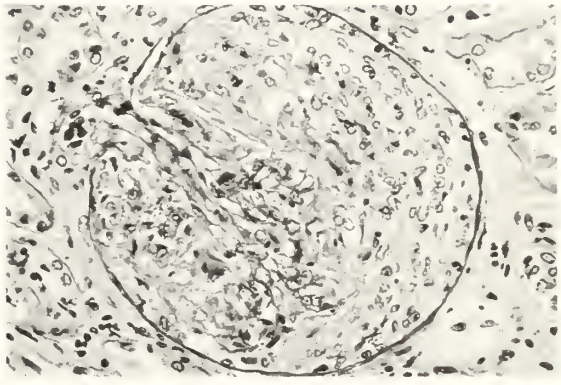


Fig. 4 Proliferative glomerulonephritis with conspicuous epithelial crescent filling Bowman's space. Hematoxylin and Eosin x 300.

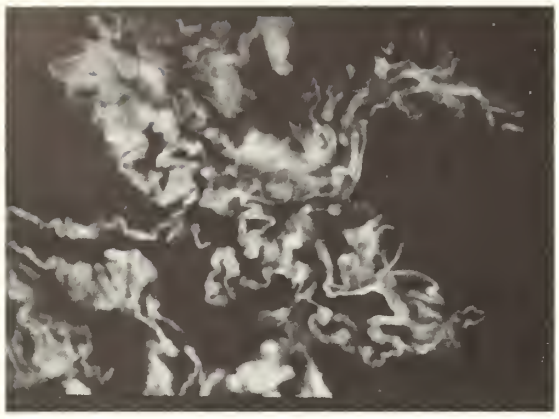


Fig. 5 Delicate, linear immunofluorescent staining (IgG) of renal basement membranes in Goodpasture's syndrome, a typical antiglomerular basement membrane disease.

the disease. A large number of fresh red cells are present in Bowman's space and the renal tubules which correlates well with the patient's clinical evidence of hematuria. The immunofluorescent studies are characteristic of this syndrome. Immunofluorescent stains show a diffuse, delicate, linear deposition of fluorescent material along the glomerular basement membranes (Fig. 5). Anti-glomerular basement disease characteristically shows this thin diffuse linear staining and Goodpasture's syndrome is one of the classic types of this form of glomerular disease. This is in contrast with a different type of glomerular disease, referred to as immune complex disease in which antigen-antibody complexes form on the basement membrane producing on immunofluorescent staining the characteristic discontinuous, lumpy deposits. This is the type of glomerular change that one would see in a patient who had a post-streptococcal glomerulonephritis. The case today in addition to positive staining for IgC also showed a positive reaction for IgA and IgE, not quite as strongly but still definite. A positive reaction was also obtained for complement B_{1c} indicative of complement fixation by the anti-glomerular basement membrane antibody. Immunofluorescent stains were also done for IgM and these were negative. The pathogenesis of Goodpasture's syndrome as being an immune disease with anti-glomerular basement membrane antibodies has been well documented. There have also been cases reported where similar deposition of immunoglobulins have occurred in the basement membranes of the alveoli which supports Dr. Munster's contention in his clinical discussion. Goodpasture's syndrome typically occurs in young adults and is more common in males. The question is not resolved as to what initiates the process. Why are the immunoglobulins suddenly directed against the basement membranes of the lung and kidney? Although still subject to speculation it is interesting that Goodpasture's original article dealt with patients who were seen during the influenza epidemic of 1918. The case he described was that of a young man who had recovered from influenza and then about 6 weeks later developed hemoptysis and rapidly progressive renal failure. This suggests possible association with the influenza virus as an initiatory event. There is a recent report in the *Annals of Internal Medicine*, January, 1972 describing a young woman who developed Goodpasture's syndrome documented with immunologic studies that followed a virus infection of the influenza A-2 type. So again in a recent paper we have the suggestion of viral infection predisposing to the development of this immunologic disease, the proposition being that viral injury exposed or modified the basement membranes so that antibodies would be produced against them. This patient did recover and the symptoms were of comparatively short duration so that the syndrome was somewhat atypical, but it certainly illustrates an intriguing possibility.

Final Anatomical Diagnosis: Diffuse proliferative glomerulonephritis with massive pulmonary hemorrhage (Goodpasture's Syndrome).

THE DIALYSIS NURSE: A SPECIAL BREED?

SYLVESTER R. MLOTT, Ph.D.*

During the course of intermittent hemodialysis, close relationships develop between the patient and the nursing staff. In cooperation with the physician in charge of the unit, the nurse is responsible for seeing the patient during the hospital visits, ascertaining his condition, and putting him on dialysis. She attends to him during a time when his life quite literally depends upon her operation of a machine which sustains his life. Not only must she be able to handle all aspects of the procedure, but she must be capable of establishing a trusting relationship between herself and the patient.

One of the major problems facing the chronic dialysis patient is the dependency-independency conflict. It is necessary that feelings of independence be nurtured even though the patient is placed in a situation of complete dependency by the treatment procedure itself. The nurse working on a chronic dialysis unit must be aware of this need for independence and work toward preserving these feelings in her patients. Therefore, no conflict in this area should exist in her own life. The nurse-patient interaction, then, is of extreme importance in the treatment of the chronic dialysis patient.

Literature records numerous articles concerning the hemodialysis patient,[1-8] but very little data regarding the nursing personnel who attend them is available in the literature. Henckley[9] points out that there has been a changing attitude toward dialysis. It has progressed from a research procedure carried out mainly by physicians to an accepted medical procedure involving nurses and technicians. In essence, dialysis is a specialized kind of nursing. It was the purpose of this study to determine what distinguishing personality characteristics the dialysis nurse possesses and ascertain if these characteristics differ from other nursing specialties.

METHOD

The data presented here were collected from seven different groups of nursing personnel, with eight nurses participating in each group. They comprised the following nursing specialties: Renal dialysis, psychiatry, general surgery, pulmonary, plastic surgery, general admitting, and geriatric. Ages of the nurses ranged from 23.4 to 58.31, with a mean of 33.68.

Psychological Tests. The battery of tests selected for use in the study was designed to tap as many psychological variables as possible and included: Barrons Ego Strength Scale,[10] Life Goals,[11] The Minnesota Multiphasic Personality Inventory (MMPI),[12] Dogmatism Scale,[13] Internal versus External Control of Behavior,[14] the Welsh Anxiety and Repressive Scales,[15] and Fear Inventory.[16]

RESULTS

Test Behavior. The nursing staffs completed the tests during their off-duty time in order that no conflict with their nursing duties would be encountered. All groups participated willingly and were cooperative and enthusiastic about what areas of correspondence or discrepancy would be revealed among their nursing specialties.

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Minnesota Multiphasic Personality Inventory. Results of the MMPI revealed that the typical nurse in the dialysis group, like her counterpart in the other groups possesses an adequate self-concept, good level of ego strength (psychological bounce), and is mature, cheerful, socially outgoing, conventional and conforming. She is relaxed regarding responsibilities, is apt to evidence independence, and possesses adequate feminine interest. She is highly motivated and relates in a fairly trusting manner. She departs from the other groups in that she is apt to be somewhat more controlled (impulse control) and evidences a higher degree of orderliness in her everyday routine. She is likely to be more introverted than either the geriatric or psychiatric nurse ($F = 3.1387$, DR 6/49, $.05 < p$) and more anxious than the psychiatric nurse ($F = 2.3616$, DF 6/49, $.05 < p$) while on a comparable level with the other groups.

Fear Inventory. Although fairly similar in her fear pattern with the other nursing groups (animal fears, tissue or wound fears, social fears, etc.), the dialysis nurse is apt to evidence slightly more miscellaneous fears than those found in the geriatric group ($F = 2.2773$, DF 6/49, $.05 < p$).

Dogmatism Scale. The Dogmatism Scale measures degree of close mindedness, acceptance of proof when presented by authority figures, etc. Using this instrument, the dialysis nurse evidences the lowest level when compared to other groups ($F = 2.3110$, DF 6/49, $.05 < p$), reflecting her greater degree of "open mindedness," tolerance of other people having different beliefs and possessing more positive beliefs about herself and others. She is apt to communicate more with her patients and to work with them toward independence.

Internal Versus External Control of Behavior. The dialysis nurse evidences just about the opposite trend in her locus of internal versus external control scores. On this test, she evidenced the second highest score (second to plastic surgery), reflective of her tendency to believe that forces beyond her control determine the occurrence of reinforcements she encounters (such as luck, chance, fate, etc.). In addition, seeing themselves as "externals" (a high scorer on the test), there is apt to be lessened anxiety when confronted by threatening material challenging her own self-concept. There is likely to be very little defensiveness when encountering negative professional interpretations of their personalities and less threat when encountering emotional disorders in others.

Life Goals. Some interesting aspects became apparent when investigating what life goals are motivating to the dialysis group. They evidenced the highest strivings of all groups in the areas of profit ($F = 2.294$, DF 6/49, $.05 < p$) and leadership ($F = 2.304$, DF 6/49, $.05 < p$), and the second highest strivings of all groups for esteem (Admitting was first). While the dialysis nurses' strivings for fame, social service, interesting experiences, and independence were on a comparable level with the other nursing groups, the dialysis group as a whole evidenced very low strivings in the areas of power and security when compared to their counterparts.

DISCUSSION

Although limited research has been done to ascertain what traits are most desirable in a renal dialysis nurse, the present study, along with observations of her work duties, indicates that she should be a mature, socially outgoing individual who possesses a well-rounded life and one who avoids an isolationist image. She must be relaxed regarding responsibilities including those of initiating and discontinuing each dialysis session, and evidence confidence and ability in handling emergencies that may arise. In order to effectively encourage and maintain independence in her patients, she must be able to

resolve any dependency needs which might arise in her own life. A high level of motivation should be present to help overcome the resistance evident in her patient when she attempts to help him adapt to a daily living routine which is different from what it was in the past. She should be able to communicate with others to insure complete and accurate transfer of information when it is needed between herself and other staff members or between herself and her patients. This latter aspect becomes increasingly important when instructing the patient and spouse in the dialysis procedure and operation of the dialysis machine. In addition to evidencing adequate feminine interest, the renal dialysis nurse must be a cheerful individual who can counteract the sporadic pessimism that occurs in her patients.

Results of this study revealed that in addition to the adequate norms shared by all seven groups, the dialysis nurse possesses a consolidation of additional traits which equip her to handle the unique role of treatment of chronic dialysis patients. For instance, she departed from the other nursing groups in that she appears to possess the greatest degree of "open mindedness" and tolerance of other people having differing beliefs, and she maintains more positive beliefs about herself and others. These traits should enable her to be highly effective in establishing a friendly and trusting relationship and in handling complaints without feeling threatened. She is also likely to be tolerant of irritability in her patients when it arises in relation to a new regimen involving scheduled dialysis sessions and treatment. She possesses sufficient ego strength (psychological bounce) and evidences lessened anxiety when confronted by threatening material challenging her own self-percept, such as possible professional interpretations of her personality or displaced hostility by her patients during periods of crisis or frustration. In addition, she is capable of handling and discussing emotional disorders when they are encountered. Being a leader, she will organize a curriculum for patients and personnel in dialysis using all available tools of instruction. She apparently is a very secure individual who has little need for power and one who radiates a concern for her patients rather than evidencing trends of self-enhancement and control over her vulnerable, easily threatened patients. Although overtly denied by the nurses themselves, striving for profit is important for the renal dialysis nurse. This trait apparently does not negate her dedicated performance.

In summary, the data from the study revealed that the dialysis nurse possesses personality characteristics which fit admirably into her nursing role. It is the author's opinion that pre-testing of applicants for dialysis nursing has much merit in determining which applicants would suitably fill the role of the dialysis nurse. This could include test items covering various technical and mechanical aspects of the dialysis treatment since this becomes quite important in the everyday functioning of the renal dialysis nurse.

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President's Pages



Hospital Physician Relations

Changing times have brought about the growing need for board-administration-medical staff partnership in the provision of proper health care.

The providers of health care have been getting it from all sides—government, industry, labor, consumers, and even from each other. Disagreements between hospital administrators, trustees, and physicians tend to divide us at a time when what is needed is unity.

Fortunately, we appear to be passing that period of division. There has been improved relations recently between the American Hospital Association and the American Medical Association. At the local level within individual hospitals we should be in a better position to join together than has been the case in the past.

Today's hospital is an organizational as well as a physical creature. It is an organized arrangement of all the human, economical, and technical resources necessary to bring the individual into contact with the skills of his physician and other members of the health care team.

As the hospital has become more complex and as its mission has been extended, the roles of those who must make it work also have changed. Often times the results have been confusion and resentment. In the past, trustees, physicians, and administrators with increased pressure from the community frequently find themselves unable to operate or cooperate.

Today physicians are under pressure from trustees and administrators to hold down cost, from patients to do whatever is "necessary," and from government to regulate quality. There is no longer a division of responsibility in a hospital as it was once known. There is no easy solution to this problem. What is needed is a recognition on the part of all those involved in the delivery of health care that things have changed and will continue to change, and that these changes had best be accepted, and that providers should try to adapt to them.

Physicians should recognize that others in the hospital have a legal responsibility for insuring that high quality care does exist. On the other hand, trustees and administrators must realize that a physician cannot do his job without having a say in how

the hospital is run. The responsibility for cost control rests with all three groups: board of trustees, administrators, and medical staff. AMA and AHA have begun realizing the increase in degree to which the federal government is becoming involved in the operation of health care systems. PSRO, economic controls, and re-imbursement for Medicare and Medicaid are all issues that directly affect and perhaps limit the freedom health care professionals have had in doing their jobs. PSRO, never a popular subject with physicians, is the law of the land. The AMA agreed to this after it was passed in an effort to make it work, because if they did not it would be dictated by the bureaucracy in Washington.

The AHA has developed its own quality assurance program, and as everyone knows, there has been a great deal of dissatisfaction among doctors concerning this QAP. The AHA has agreed that programs such as QAP that affect physicians will be discussed with the medical profession with the possibility of developing cooperation between the AHA and physicians. The AHA emphasizes that their endeavor was to keep control of the quality of medicine with the medical staff of an institution rather than permitting it to become a part of government bureaucracy.

The Department of HEW sent out a letter 73-12 detailing a procedure whereby utilization committees would have been required to develop pre-admission certification procedures and length of stay screens subject to the surveillance of intermediaries without adequate provision for tie-ins to the development of PSRO's. The objection of AMA and AHA caused them to shelf this for the time being.

Up until now the AHA and AMA have taken separate actions concerning the economic stabilization program. They have come now to realize, however, that physicians, hospitals, and those they serve may have a lot to gain and a lot less to lose if separate actions become a joint action. At this time the possibility of joint action is being explored. Physician organizations must be concerned with relief for the economic survival of their members, but physicians also must be concerned with the economic survival of institutions they work in if they are to continue to provide high quality medical care.

Physicians experience a very real and very understandable sense of frustration about their security with the threat against the continuation of private practice of medicine. These feelings have been caused by the increasing amount of regulations and legislation from both state and federal government.

The AHA and AMA both believe that representation on hospital boards of trustees by physicians is desirable and this is being promoted at this time.

I believe that the AHA has recently stated that it feels that the provision of health care in a hospital is above all a partnership, and that excluding any one of the partners from the decision-making process by effectively excluding him with only minimal representation will destroy the possibility that the partnership will work to its fullest potential.

Harold P. Hope, M.D.
SCMA President

Editorials

La Leche League Arise!!! or Tit, Si! Tat, No!

Alan Berg[1] called attention to an instance of underdeveloped nations taking on the habits of the richer nations that may have serious consequences for the future of the poor countries. Almost everywhere maternal nursing has declined both in frequency and in duration. In the past twenty years in Chile, the incidence of breast feeding beyond the first year of the infant's life has declined from 95 per cent to 6 per cent. Only 20 per cent of babies are being nursed as long as two months. During the same period of time in Singapore, breast feeding beyond three months has declined from 80 per cent to less than 5 per cent. In other areas, similar though less extreme trends have been noted.

Abandonment of breast feeding of infants is particularly harmful in the disadvantaged countries for several reasons. These infants (and adults) are already woefully short of protein in their diet. Maternal milk can usually completely satisfy an infant's protein needs for the first four to six months of life and supplies about 75 per cent during the second six months. The alternative to mother's milk in the areas considered is very likely to be contaminated from the water used to mix it. Also shortening the lactation period hastens the resumption of ovulation and increases fertility. All these factors bode ill for our poorer neighbors of the world.

La Leche Leagues have been established in the more developed countries to encourage the time-honored and desirable convenience of breast feeding. It seems La Leche Leagues should look to underdeveloped areas for their further extension.

[1]Berg, A.: The nutrition factor: its role in national development, The Brookings Institute, Cambridge, 1974.

EEK

PSRO — A New Four Letter Word?

Professional Standards Review Organization (PSRO) has been debated extensively in the medical and lay literature, with many advocates and many detractors. Here is one more angle to consider in reaching your final judgment on PSRO.

PSRO as defined by the Department of Health, Education and Welfare is "A program organized, administered, and *controlled* by *local* physicians to evaluate the necessity and quality of medical care delivered in their area under Medicare, Medicaid, and Maternal and Child Health programs." "PSRO will cause little change in the way most physicians practice medicine." "PSRO is an effort to make review of federally funded medical services *more effective* through greater participation by the *physicians* themselves. The federal government spends 17 billion dollars a year on the Medicare and Medicaid programs and has responsibility to see that medical care paid for with public funds is necessary and that it meets certain *quality* standards." "The dominant emphasis of the PSRO program is on assuring the *quality* of medical care." ". . . priority to be given to organization at *local levels* so that the program is organized, administered, and controlled by

local *practicing physicians.*"[1]

If the above quotations can be taken at face value, and there is no reason to assume they can't, the federal government intends PSRO to be controlled *locally* by *practicing* physicians for the sole purpose of assuring high quality of medical care under federally funded programs. If this be true, why any anguish over PSRO?? I might ask you to consider the following current events.

1. Recently the federal government has gotten into gasoline retailing. There have been obstructions, threatened closing of many stations, governors defying federal orders, et cetera, et cetera. Gasoline retailers have found out how government regulation and interference affects their business. We physicians have known this for a long time.
2. Members of the trucking industry have recently had experience with government regulation. They met this interference with force, mayhem, and murder. I certainly do not suggest this as an appropriate response to federal interference but I do note that by resisting the federal government, the truckers did get what they wanted to a large extent.
3. My office was recently furnished a publication entitled "A Guide for Physicians and Other Providers of Care Under the Civilian Health and Medical Program of the Uniformed Services." On the first page of this "guide" are the following sentences: "This manual purports to serve only as a *guide* for physicians and other sources of care. To include every detail regarding CHAMPUS would produce a document that would be unwieldy and complex." What follows is a 55-page, very complex, complicated "guide" to be followed by a physician merely submitting a bill for those covered by this government program.

Why should any doctor object to PSRO, the only purpose of which is to insure quality of medical practice in government funded programs by surveillance of local practicing physicians? Surely no well meaning physician would object to this goal. However, EXPERIENCE HAS SHOWN US THAT GOVERNMENTAL BUREAUCRATIC INVOLVEMENT IN MEDICAL CARE GREATLY INCREASES EXPENSE, USUALLY REDUCES QUALITY, AND INVARIABLY GREATLY COMPLICATES ADMINISTRATION. With the goals we agree. The methods we deplore.

[1]All quotes from "PSRO Questions & Answers" DHEW. Emphasis mine.

EEK

The Prevention of Tuberculosis

The declining status of tuberculosis is well known to us all. The reasons why are not quite so well known.

Even though a slow decline in tuberculosis cases and deaths began early in this century with the development of the sanatorium movement, the real progress in control can be dated from the introduction of chemotherapeutic agents in the middle of this century—first as treatment of known cases, and a decade later as a preventive measure in those at risk of developing the disease. A decrease of more than 95% in the TB death rate since their introduction is evidence enough of the effectiveness of treatment. Today tuberculosis deaths are no longer a useful statistic in evaluation of the problem. At the same time that these drugs are saving lives they are also decreasing new infections by rapidly diminishing the number of bacilli excreted from patients. Thus, proper drug treatment is nearly 100% effective in achieving this dual goal of cure and prevention of further spread. Unfortunately, the time required to achieve these goals is prolonged and presents the greatest obstacle to success. It requires the utmost perseverance and skill of both physician and patient to keep up

an often unpleasant drug regimen long after all symptoms have subsided.

Soon after drug treatment had proven its effectiveness in controlling TB, the question naturally arose—could drugs reduce the frequency of new active cases of tuberculosis? Controlled trials beginning as early as 1955, involving hundreds of thousands of individuals at higher than normal risk of developing tuberculosis, now provide an undisputably positive answer—YES. The frequency of new active cases among those given isoniazid showed consistent reductions in the range of 60% to 90% when compared with matched groups given a placebo in double blind studies. This effect, while greatest during the years of treatment, has shown no indication of disappearing during the more than 15 years observation following the years of medication, with still fewer cases occurring among the treated than control groups.

Current tuberculin testing data indicate that from 8 to 10% of the population in South Carolina would react positively to the tuberculin skin test. This means that nearly a quarter million persons probably harbor live tubercle bacilli and have the potential of becoming active cases at some time in their lives. All would theoretically benefit from preventive treatment with isoniazid. It is of course not practical to test and treat all reactors in the population. However, there are many individuals known to have an increased risk of developing tuberculosis and every physician should know the relative risks of diseases versus possible toxicity of preventive treatment in order to decide if a year's treatment with isoniazid is indicated.

With an annual risk of one in 30 and one in 200, priority should be given for preventive treatment with isoniazid to the following:

1. Household contacts of new active cases of pulmonary tuberculosis, both infected (positive, tuberculin) and non-infected (negative, tuberculin)
2. Selected non-household contacts
3. Recent tuberculosis converters of any age
4. Those with inactive tuberculosis without previous adequate treatment
5. Tuberculin reactors under 20 years of age—especially pre-school children
6. Reactors with special clinical complications such as long-term corticosteroid or other immunosuppressive treatment, diabetes mellitus, pneumoconiotic disease, post gastrectomy or reticuloendothelial diseases, such as Hodgkin's disease or leukemia.
7. Children who have positive tuberculins and who develop measles or whooping cough or who receive measles vaccine (with the exception of previously treated children)
8. Pregnant women with a positive skin test, especially if x-ray indicates pulmonary scarring consistent with inactive tuberculosis. (Preventive treatment should be begun in the last trimester and continued for a full year. If treatment had been received in the past, preventive treatment may be discontinued three months after delivery or a total of only six months.)

During the fiscal year ending June 30, 1973, 6,020 individuals in South Carolina were placed on preventive treatment with isoniazid. Approximately half, 2,964, were household contacts of newly diagnosed cases of tuberculosis with the remaining being high risk individuals for other reasons. Sample checks indicate that at least 80% of these complete their preventive treatment with most of those failing to do so simply from lack of cooperation or for vague complaints which were attributed to the drug. These include gastrointestinal discomfort, headache and vertigo but no subjective evidence of toxicity. A very small percentage exhibit hypersensitivity reactions with fever, skin rash and generalized discomfort and, of course, have their preventive treatment discontinued with advice not to take isoniazid again for this purpose.

The occurrence of liver disease in

recipients of isoniazid is now recognized as the most serious toxic manifestation and is the object of the most intensive study by the Tuberculosis Research Branch of the Public Health Service. The incidence is not uniform and varies from 0 to 10 cases per 1,000 patients on the drug per year. In South Carolina for the year ending June 30, 1973, in which 6,020 persons were begun on preventive treatment with isoniazid, only two reports of hepatitis were received, an incidence of .03%. One of these recovered on medical treatment and one died. Liver toxicity does not occur in children and seems to be related to increasing age and especially to alcoholics and those on other potential hepatotoxic drugs. Pathologically the lesions found in the liver cannot be distinguished from those seen in viral hepatitis, making this endemic disease another possible factor in this problem. There have also been a few who, on monthly monitoring at time of dispensing isoniazid, have revealed symptoms which prompted liver enzyme studies which have been elevated. For this reason the drug was discontinued with return of enzyme studies to normal within a month. This would indicate that the hepatic damage is completely reversable when detected early.

A panel of national and international experts assembled by the Public Health Service to investigate isoniazid associated liver dysfunction after several years of study with the concurrence of the American Thoracic Society and the National Lung Association have agreed that the program of isoniazid preventive treatment should not be modified at this time except in the case of confirmed alcoholics whose only risk factor is a positive tuberculosis test. Frequent monitoring of the recipient of isoniazid for any early symptoms of liver dysfunction reduces any risk to acceptable limits. It must be remembered that the risk of liver damage is only for the one year duration of prophylaxis while the risk of tuberculosis is a lifelong one.

Reports now available indicate 615 new active cases of tuberculosis in South Carolina for 1973, only a 5.5% decline from the 651 reported in 1972. The maintenance of similar small declines in the years ahead will require the all-out effort and cooperation of physicians and health agencies in early diagnosis, reporting, and treatment of tuberculosis as well as the preventive treatment of selected individuals at high risk of developing the disease. By the very nature of TB, two-thirds of the newly diagnosed cases are advanced and capable of having already infected many others. It is only through preventive treatment, that the vicious cycle of transmission of the infection can be broken and the day of true control hastened.

David B. Gregg, M.D.
Director, Division of Tuberculosis Control
S. C. Department of Health and Environmental Control

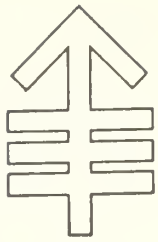
The Journal of the South Carolina Medical Association

50 YEARS AGO

April, 1924

The Annual Meeting in Orangeburg was reported as most successful. Membership in the Association came to 687. Dr. William Pusey, president-elect of AMA was a guest.

CANCER TOPICS



PAUL H. O'BRIEN, M.D., F.A.C.S.*

VIROLOGY IN HUMAN CANCER

PAUL H. O'BRIEN, M. D., FACS*

In late November of 1973, the American Cancer Society and the National Cancer Institute had a three day program on Virology and Immunology in Human Cancer. An outstanding collection of essayists were assembled to present to both clinicians and basic scientists current attitudes. I would like at this time to review some of the material presented in Cancer Virology.

In lower animals cancer is consistently caused by tumor viruses. The great majority of cancers are caused by RNA tumor viruses. The DNA tumor virus causing cancer in lower animals can only be demonstrated by experimental manipulation. The major attention in animal viruses has, of course, been the RNA tumor viruses. The RNA viruses found commonly in animal tumors were felt not applicable in humans as the early "theology" of molecular biology had been that DNA could maintain only a one-way flow of genetic information to RNA. It was in 1970 when Temin and Mituzani discovered a polymerase apparently unique to oncogenic RNA viruses, reverse transcriptase, which was capable of reversing the flow of genetic information from RNA to DNA.[1] With this discovery past attention on possible human oncogenic viruses has focused more closely on the RNA viruses.

Reverse transcriptase is an enzyme which is not only essential for tumor genesis, but unique to viruses with oncogenic potential.[2] Therefore, if reverse transcriptase is found intercellularly in a tumor, it can be considered at least a viral "footprint". Its presence in a malignant cell constitutes presumptive evidence for the viral nature of the initiation of carcinogenesis. Oncogenic viral genes may remain in the transformed cell and their presence is detected by molecular hybridization. With these techniques, a large list of tumors found in man now regularly produce evidence for the presence of an RNA tumor virus: (1) human medulloblastoma, retinoblastoma, neuroblastoma; (2) rhabdomyosarcoma; (3) lymphocytic leukemia; (4) breast cancer; (5) sarcomas particularly of osteogenic origin; (6) carcinoma of the cervix; and (7) Burkitt's lymphoma.

The above rather extensive list of cancers in humans which have direct and indirect evidence for implicating viruses in their pathogenesis are not epidemic in nature. Furthermore, patients who have survived, particularly cancer of the breast, with current efforts of therapy, have no increased protection towards the

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development of a second breast cancer.

Because of these problems, it was concluded that a cancer vaccine is highly unlikely. Immunization which has been so successfully applied for the control of many viral illnesses will probably be of little use in human cancer of viral origin.

Attention was directed towards the developments of anti-viral compounds. Due to the spasmodic incidence of the above listed cancers, it would seem that if indeed a viral etiology is subsequently proven, such anti-viral compounds would replace the virologist's dream of yester-year of the anti-cancer viral vaccine. Compounds which currently contain broad clinical applicability are Interferon, a substance which selectively blocks the synthesis of viral protein without effecting cell protein synthesis and is in man a major mechanism for host defense against primary virus infection;[3] (2) Streptovaricin, a reverse transcriptase inhibitor. As we mentioned earlier, the viruses associated with human cancers are of the RNA type and they require reverse transcriptase to become the initiating DNA for inappropriate cell replication. Inhibitors of this reverse transcriptase would leave theoretically the RNA tumor virus impotent.[4] The further elucidation of the exact relationship between tumor viruses and human cancer is developing rapidly. If and when such relationships are defined, the above mentioned anti-viral agents could assume major significance.

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SOUTH CAROLINA MEDICAL ASSOCIATION
HOUSE OF DELEGATES

C. Tucker Weston, M.D., Speaker

ORDER OF BUSINESS **Monday, May 13, 1974**

9:30 a.m.
Call to Order
Invocation
Report of Credentials Committee
Opening Remarks by the President
Introduction of President-Elect
Announcement of Reference Committees
Introduction of President-Elect of the AMA
Dr. Malcolm C. Todd, Long Beach, California
Introduction of Special Guests
Congressman Philip Crane
Presentation of Resolutions and Recommendations

10:30 a.m.
Introduction of Officers and Guests of Woman's Auxiliary

Reports of Officers:
The President
The President-Elect
The Chairman of Council
The Executive Director
The Secretary
The Treasurer
The Editor of the Journal
The Delegates to AMA

Reports of Committees:
The reports of the Committees will have been published in the *Journal* and the House of Delegates Handbook and will not be read before the House. Any supplementary remarks by the Chairmen will be heard at this time.
Report of State Board of Medical Examiners
Report of the State Board of Health and Environmental Control
Unfinished Business
Amendments to the Constitution
New Business

3:00 p.m.
Meeting of Reference Committees
All members of the Association are invited to appear before the committees considering matters in which they are interested. Meeting places will be posted and announced.

Wednesday, May 15, 1974

9:30 a.m. Call to Order
Report of Memorial Committee
Reports of the Reference Committees

11:30 a.m. **Annual Elections**

Officers
President-Elect
Vice President
Secretary
Treasurer

Delegate to the AMA (2-year term):
The term of Dr. Thomas Parker expires December 31, 1974

Alternate Delegate to the AMA (2-year term):
The term of Dr. H. L. Peeples expires December 31, 1974

Councilors (3-year term):
Third District — the term of Dr. W. A. Klauber expires. (1968)
Sixth District — The term of Dr. J. D. Gilland expires. (1968)
Ninth District — The term of Dr. E. M. Colvin expires. (1971)

Members of the Mediation Committee (3-year term):
Third District — The term of Dr. R. P. Baker expires. (1971)
Sixth District — The term of Dr. J. S. Garner expires. (1971)
Ninth District — The term of Dr. W. A. Wallace expires. (1968)

Members of the Peer Review Committee (3-year term):
Third District — The term of Dr. E. M. Mobley expires. (1971)
Sixth District — The term of Dr. E. L. Proctor expires. (1971)
Ninth District — The term of Dr. M. F. Patton expires. (1971)
At Large — The term of Dr. J. Anthony White expires. (1971)

Member of Benevolence Committee (3-year term):
The term of Dr. Clay W. Evatt, Jr. expires. (1968)

Members of State Board of Medical Examiners (4-year term):
Fourth Congressional District — The term of Dr. Charles N. Wyatt expires.
At Large — The term of Dr. William O. Whetsell expires.

Technical Advisory, Radiation Control Council (3-year term)
The term of Dr. George W. Brunson expires. (1968)

Selection of Place for 1977 Annual Meeting
Sine Die Adjournment

Membership Meeting, South Carolina Medical Care Foundation

SCIENTIFIC PROGRAM

May 14, 1974

8:30 a.m.-9:30 a.m. Breakfast (for General and Specialty Groups)
—Grand Strand II—

Dr. Allan M. Lansing *Cardiovascular Surgery*
Dr. Guy L. Odom *Neurosurgery*
Dr. James Leonard *Medicine-Cardiology*
Dr. David Charles *Obstetrics-Gynecology*
Dr. John Woodard

GENERAL PROGRAM —Grand Strand I—

10:00 a.m. Dr. Allan M. Lansing
Clinical Evaluation of the Ischemic Leg

11:00 a.m. Dr. Guy L. Odom
Trauma to the Central Nervous System

12:00 m. Dr. James Leonard
Heart Murmurs—Functional or Fatal

12:40 p.m.-1:10 p.m. Question and Answer Period

1:10 p.m. Alumni Luncheon —Main Dining Room— Everyone Invited

2:30 p.m. Dr. David Charles
Contraception 1974

3:30 p.m. Dr. John Woodard *Urology*
The Significance of Childhood Urinary Tract Infections

4:10 p.m.-4:30 p.m. Question and Answer Period

SPECIALTY PROGRAM —Grand Strand III—

10:00 a.m. Dr. James Leonard
Pathophysiology of Heart Sounds

11:00 a.m. Dr. David Charles
Role of Fetal Adrenal Gland in Pregnancy

12:00 m. Dr. John Woodard
The Surgical Management of Severe Obstructive Uropathy

12:40 p.m.-1:10 p.m. Question and Answer Period

1:10 p.m. Alumni Luncheon —Main Dining Room— Everyone Invited

2:30 p.m. Dr. Allan M. Lansing
Present Indications for Open Heart Surgery

3:30 p.m. Dr. Guy L. Odom
Cerebral Vasospasm

4:10 p.m.-4:30 p.m. Question and Answer Period

WOMAN'S AUXILIARY
TO THE
SOUTH CAROLINA MEDICAL ASSOCIATION



Mrs. Ben H. Johnson, Jr., Southern Regional Vice-President, Woman's Auxiliary to AMA.

51st Annual Convention

May 12, 13, 14, 15, 1974

Landmark Motor Inn
1501 South Ocean Boulevard
Myrtle Beach, S. C. 29577

EVERYTHING UNDER ONE ROOF
FOR YOUR CONVENIENCE

PROGRAM

Registration —Coffee Shop Area—

Sunday, May 12..... 3:00 p.m.- 5:00 p.m.
Monday, May 13..... 8:00 a.m.-11:30 a.m.
Tuesday, May 14 .....8:00 a.m.-10:00 a.m.

Sunday, May 12

4:00 p.m. Finance Committee Meeting
—President's Suite—

Monday, May 13

8:00 a.m.-9:30 a.m. Complimentary Continental Breakfast —Coquina Room, 4th Floor—

10:00 a.m. Executive Board Meeting —Coquina Room, 4th Floor—
Mrs. Leonard W. Douglas, President, presiding

1:30 p.m. SOCPAC Luncheon —Grand Strand I, 4th Floor—
Guest Speakers: Rex Carter, Speaker, S. C. House of Representatives
Mrs. W. Nash Thompson, Jr., President, Woman's Auxiliary to the Southern Medical Association

7:00 p.m. Auxiliary Festivities —Grand Strand Ballroom, 4th Fioor—
Husbands cordially invited, Past State Presidents honored
7:00 p.m.-8:00 p.m. Social Hour
8:00 p.m. Buffet and Fashion Show
All fashions designed and hand-tailored by Carolyn Johnson

Tuesday, May 14

8:00 a.m.-9:30 a.m. Complimentary Continental Breakfast —Coquina Room, 4th Floor

10:00 a.m. House of Delegates Meeting —Coquina Room, 4th Floor—
Mrs. Leonard W. Douglas, President, presiding

1:00 p.m. Membership Luncheon —Grand Strand II, 4th Floor—
Honored Guest and Speaker: Mrs. Ben H. Johnson, Jr., Southern Regional Vice-President, AMA Auxiliary

3:00 p.m. Post Convention Board Meeting —Coquina Room, 4th Floor—
Mrs. Wayne Brady, presiding

6:30 p.m. SCMA Reception and Banquet —Grand Strand Ballroom, 4th Floor—
Harold P. Hope, M.D., President, South Carolina Medical Association, presiding
Guest Speaker: Walter H. Judd, M.D., Missionary, Politician, Educator, Journalist
President's Ball to Follow.

Wednesday, May 15 State Auxiliary Workshop

PRE-REGISTRATION FORM

FOR CONVENTION

WOMAN'S AUXILIARY TO THE SOUTH CAROLINA MEDICAL ASSOCIATION

May 12-15, 1974

Please print or type

Name_____ First Name_____

Address_____

City_____ S. C. Zip_____

Where staying in Myrtle Beach_____

Check Desired Activity and Include Check

Sunday, May 12, 1974
Registration 3:00-5:00 p.m., Coffee Shop Area

Monday, May 13, 1974
( ) Registration 8:00-11:30 a.m., Coffee Shop Area

8:00-9:30 a.m. Complimentary Continental Breakfast, Coquina Room, 4th Floor
10:00 a.m. Executive Board Meeting, Coquina Room, 4th Floor
1:30 p.m. SOCPAC Luncheon in Grand Ball Room Area, 4th Floor
( ) 7:00 p.m. Social Hour in Grand Ball Room Area, 4th Floor
Buffet Fashion Show, Grand Ball Room Area, 4th Floor
Price: $12.00 per person

Tuesday, May 14, 1974
( ) 8:00-10:30 a.m. Registration, Coffee Shop Area
8:00-9:30 a.m. Complimentary Continental Breakfast, Coquina Room, 4th Floor
10:00 a.m. General Meeting in Coquina Room, 4th Floor
( ) 1:00 p.m. Membership Luncheon in Grand Strand Room II, 4th Floor
Price: $5.00 per person
2:30 p.m. Post-convention Board Meeting in Coquina Room, 4th Floor
( ) 6:30 p.m. SCMA Reception and Banquet in Grand Ball Room, 4th Floor

REGISTRATION FEE FOR EACH MEMBER — $1.00
Reservation forms with check, should be mailed prior to May 1, 1974 to Mrs. Harold Murray, Route 10, Box 259, Anderson, S. C. 29621. Tickets will be held at pre-registration desk in Coffee Shop area of Landmark Motor Inn during registration hours ONLY. NOTE: Pre-registration for the various activities, with your check, must be made by *MAY 1, 1974 DEAD LINE*. There will be *NO* tickets available at Convention.
REMIND YOUR HUSBANDS TO GET SCMA BANQUET AND SOCPAC LUNCHEON TICKETS

REPORTS OF COMMITTEES

Advisory Committee to the Crippled Children's Society

This Committee continues to function as a standby group and held no meeting this year. A meeting is planned for the time of the coming annual meeting.

Joseph I. Waring, M.D.
Chairman

Committee on Constitution and By-Laws

The Committee on Constitution and By-Laws of the South Carolina Medical Association met with the following members present: Dr. J. Gavin Appleby, Chairman, Dr. Kenneth N. Owens, Dr. Halsted M. Stone, and Dr. Louie B. Jenkins.

A considerable number of items was referred to the Committee this year and its position on each item is a follows:

1. Resolution 20 asks that the membership of Council be enlarged to include the the immediate past president with vote. This would require an amendment to the Constitution. Since this is a Constitutional amendment, it automatically is laid upon the table for one year and requires no action by the Standing Committee on Constitution and By-Laws. It will be considered at our next annual meeting.

2. Resolution 22 concerns interns' and residents' representation in the House of Delegates. House action was that Resolution 22 from Council be adopted and referred to the Committee on Constitution and By-Laws for preparation of a suitable amendment to be considered at the next annual meeting. The Committee adopted the general language of the original motion as entered into the House and has prepared it in the necessary technical form to fit the various sections, chapters, and sentences to change the Constitution. In general, this change would permit interns and residents to become active members of the South Carolina Medical Association, at reduced dues, with the right to vote and hold office and committee membership. This is recommended as a pilot project for a term of five years to be reviewed one year before its completion at which time the House can decide whether to end or to extend the project. This amendment will place all interns and residents in the boundaries of the State of South Carolina into one component unit and they would not be members of other component units, namely the County Medical Societies. This separate unit would operate as any other County Medical Society by electing its own officers and it shall be entitled to send two delegates to the House of Delegates of the South Carolina Medical Association. The dues for these interns and residents shall be $15.00 per year.

3. Section III has reference to a change in the By-Laws governing Standing Committees. The terms of each member will be set at three years. Terms shall be arranged so that at least two but not more than three members shall complete their terms each year. No member shall be eligible to serve more than two consecutive terms. Chairmen of the Committees shall be designated by the President and each chairman shall call a meeting of his committee within sixty days after the adjournment of the Annual Session. Standing Committees may appoint subcommittees for special purposes.

4. Resolution 18 proposes that the Speaker of the House be empowered to appoint the members of the Reference Committees. This Resolution was referred to this Committee for study and recommendation for next year. It is the unanimous feeling of this Committee that all efforts should be made to maintain as strong a Presidency as possible in our Association and that the President should have the option of appointing members whom he knows he can work and who will work for him. With these considerations in mind, the Committee unanimously feels that no change should be made in the present By-Laws and therefore no Resolution should be entered.

5. Section 13 concerns the Council on Maternal Health. Because of certain changes in the laws of South Carolina it is necessary that the entire Section on this Committee on this Council be rewritten.

This Committee recommends that in Chapter 8, Section 13, the entire Section be removed and in its place substituted the following Section:

"This Committee shall consist of the Director of the Maternal and Child Health Division of the South Carolina Department of Health and Environmental Control, provided he is a member of the Association; one specialist in Obstetrics or Obstetrics and Gynecology from each medical district, to be recommended by the South Carolina Ob-Gyn Association; one specialist in Family Practice from each medical district, to be nominated by the South Carolina Academy of Family Practice. The Chairman shall be one of the specialists in Obstetrics or Obstetrics and Gynecology. Should notice of the nominations in the South Carolina Academy of Family Practice or the Ob-Gyn Association of South Carolina not be received by the Secretary of the Association before adjournment of the Annual Session, the Council of the Association shall appoint these members without nomination. Terms shall be arranged so that not more than seven members shall complete their terms of service each year."

6. Amendment to Chapter 8: Since emergency medical services has become such an important function in South Carolina, it is the recommendation of this Committee that a change in the By-Laws occur by adding to the list of Standing Committees, between the names Committee on Medical Service and the Committee on Mental Health, the following: A Committee on Emergency Medical Services. This section shall read: Committee on Emergency Medical Services. It shall be the function of this committee to study, suggest, and implement, with the approval of Council, ways and means for providing and improving emergency medical services, and to cooperate with State and Federal Agencies in making plans for rendering emergency medical care.

This completes the recommendations of the Reference Committee on Constitution and By-Laws of the South Carolina Medical Association.

J. Gavin Appleby, M.D.
Chairman

Committee on Continuing Medical Education

1. The Education Committee has prepared for South Carolina a booklet outlining the criteria and essentials for programs of Continuing Education for physicians. It has made application to the Education Committee of the AMA for a site visit for approval of this Committee as an accreditation committee for continuing education programs in South Carolina.

2. The Committee has met with representatives of the Division of Continuing Education of the Medical University of South Carolina, has encouraged the Division to pursue the various programs now in progress, and to expand the telephone and television network it has developed in collaboration with the South Carolina Regional Medical Program and the South Carolina ETV Network.

The Committee wishes to point out that tapes, both as produced by the Network and as purchased or rented from other sources, are made available for loan in tape or audio-cassette form, and along with a large number of audio-tapes, constitute a group of self-instructional materials which should be more widely used by physicians than now currently is the practice.

The Committee would like to secure the interest and cooperation of the SCMA in stimulating more interest in these continuing education resources.

3. The Committee has studied various approaches for identifying the needs of practicing physicians in South Carolina in respect to areas of continuing education most desired. Individual questionnaires, correspondence with hospital staffs, and correspondence with county medical societies have not been successful.

The SCMA members are requested to consider how they might best identify and express their interest in Continuing Education.

4. It seems evident that various societies

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Precautions: As with other thyroid preparations, an overdosage of SYNTHROID (sodium levothyroxine) may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, such as Addison's Disease (chronic adrenocortical insufficiency), Simmonds's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patien with cardiovascular disease; development chest pains or other aggravations of cardiova cular disease requires a reduction in dosage.

Contraindications: Thyrotoxicosis, acute myoca dial infarction. **Side effects:** The effects of SY THROID (sodium levothyroxine) therapy are slo in being manifested. Side effects, when they occur, are secondary to increased rates of bo metabolism; sweating, heart palpitations wi or without pain, leg cramps, and weight los Diarrhea, vomiting, and nervousness have al been observed. Myxedematous patients wi heart disease have died from abrupt increas in dosage of thyroid drugs. Careful observati of the patient during the beginning of any th roid therapy will alert the physician to any u toward effects.



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1 *Synthroid* is T_4.

2 Because T_4 converts to T_3 at the cellular level, it provides full thyroid replacement at maintenance doses.[1, 2]

3 T_4 hormone content is controlled by chemical assay.

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0. mg. daily, and may be increased by 0.1 mg.
ev y 30 days until proper metabolic balance is
at ined. Clinical evaluation should be made
m thly and PBI measurements about every 90
da s. Final maintenance dosage will usually
ra ge from 0.2-0.4 mg. daily. In adult myxedema,
st ting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).

Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100, 500, and 1000. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, U.S.P., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) **for Injection** may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

1. Braverman, L. E., Ingbar, S. H., and Sterling, K.: Conversion of Thyroxine (T_4) to Triiodothyronine (T_3) in Athyreotic Human Subjects, J. Clin. Invest. *49*:855-64, 1970.
2. Surks, M. I., Schadlow, A. R., and Oppenheimer, J. H.: A New Radioimmunoassay for Plasma L-Triiodothyronine: Measurements in Thyroid Disease and in Patients Maintained on Hormonal Replacement. J. Clin. Invest. *51*:3104-13, 1972.

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and boards will require more participation by those qualified for continuing membership and certification to participate in continuing education and re-examinations. Recent review of hospitals for accreditation by reviewing bodies indicates that increasing attention is to be paid to continuing education programs for all staff and department areas. Special stress is to be anticipated in professional activities as a qualification for professional staff membership.

The Committee urges the membership of the SCMA, in view of these future exigencies, to consider self-evaluation and plans for self-study in a conscientious manner. It urges that members communicate their needs to the Education Committee so that it can plan effectively to be helpful to the members.

Currently, the Committee has adopted the following GOALS FOR 1973-1974 and recommends that the SCMA members work with the Committee towards these achievements.

5. At the request of the President of the SCMA, the Committee met with Dr. Hilla Sheriff and Dr. Malcolm Dantzler on December 3, 1973, to hear and discuss the State of South Carolina Health Care Extension Program. This program, along with the Family Practice Residency Training Program and an Emergency Medical Services Program, has been proposed by the Governor's Office of Health and Social Development, and by the S. C. Department of Health and Environmental Control (DHEC), as three ways in which health services in South Carolina can be extended and made more widely available to the citizens, and especially for those areas and groups which are now underserved.

For the Health Care Extension Program it is stated that some $5 million, it is believed, will be appropriated by the Legislature in mid-January 1974. These funds are to be made available to the ten (10) Planning Districts in a proportionate manner related to population and needs. Counties



Harold Hope, M. D.
President

within a district may propose a plan, although hopefully inter-county cooperation and coordination on a district level could be worked out. Regional planning agencies should participate in the planning with practicing physicians, hospitals, public health agencies and interested citizen groups, to develop programs to extend health services.

An agency should be designed or designated to operate the program. The agency must be non-profit. Components part of the program must incorporate and define the following.

A. Geographic area, the population to be served, and services to be provided must be clearly identified.
B. The funds to be provided from the State must be matched on a 60-40 ratio by local funds.
C. Clients of the services must be registered, and continuation reporting of services and care rendered, reported.
D. How patient or client needs will be assessed; personnel, ancillary aids and laboratory resources must be identified.



Donald G. Kilgore, M. D.
President-Elect

E. Family services are desired, i.e., if initially a maternal and infant program is used and expanded, other age groups of dependents should be incorporated besides the infants.

F. Team approaches should be developed to extend professional supervision.

G. Sound plans for referral of clients to be identified, cooperating physicians and facilities with arrangements established for continuing and definitive care must be established so that screening and assessment will not be a "dead-end" procedure, but will serve as an entry into a carefully developed plan for patient care where indicated and needed.

H. Outreach services for education and counseling should be a part of the services developed in the program plans.

I. Home health services are considered to be a very important part of any program.

J. Physical facilities should be identified. Outlying clinics of many county health departments are believed to be very appropriate and could be arranged for. New building, extensive remodeling, etc., are not considered possible or desirable ways to spend the limited funds now available.

K. Full coordination with existing and other community services should be a part of a plan.

L. Consumers must participate in the planning and identifying of needs.

M. Comprehensive services should be planned.

N. As now proposed, funds are not to be used for hospital or nursing home in-patient care. Ambulatory care may be paid for. Transportation of clients and construction of facilities are not now permitted by program funds. Drugs up to 35% of the total grant may be purchased as part of the program plan. Dental care is not a part of the program.

O. Areawide groups interested, including county medical societies as bodies who might elect to organize and provide such services, should in conjunction with other agencies, and with presentation and review by the CHP (b) group or the equivalent approving body in their area, develop a plan for submission to the Governor's Office of Health and Social Development, and to the DHEC to evaluate and review. The plan should incorporate the areas mentioned, along with a planned budget for operation with assurance of 40% of funds locally provided to match the State funds.

It is to be noted that the State funds may be matched to other funds such as provided by a county or hospital for family practice training to expand the services of such a training program, or to enlarge emergency services being developed, if such would be deemed as a means of also expanding such a program into broader areas of health service. Technical assistance in developing plans may be obtained

from the Governor's Office and the DHEC, Columbia.

Evaluations of this program after operation should be planned for by review by the two agencies mentioned.

The Education Committee's Recommendation:

The Committee recommends that this program be carefully considered by the SCMA, and consider calling it to the attention of the county medical societies as a matter of some immediate urgency so that the societies might meet and study the implications and opportunities of this program which would provide for each society to meet some of the many needs present among those in their counties or districts who may be underserved for various reasons where economic assistance could prove beneficial.

The Committee recognizes there may be objections to some of the requirements of the plan as now contained in the Draft Guidelines of the plan. The Committee believes that earnest conversations could alleviate some of the more evident areas where objections may arise.

Likewise, the Committee realizes that transportation of patients and clients to a site for services is an urgent problem, and it is believed some changes in that respect in the plan will be needed.

The Committee recommends and hopes that this information will go to and be studied carefully by the several county medical societies in the State.

Vince Moseley, M.D.
Chairman

CCME GOALS

GOAL A.: Improve methods used to provide continuing medical education.

SCMA CCME should:

1. Provide information on availability of well designed instruments and procedures for precise identification of physician's needs—e.g., self-assessment tests of varying kinds, medical audit systems in hospitals and office practices, methods for constructive use of peer review. Where such material is not now available, the CCME should arrange for its development and distribution.

2. Provide expertise on methods of organizing CME; assist hospitals, specialty societies, and county societies to improve their competence in planning effective learning programs—emphasizing physician involvement in such planning.

3. Develop a list of experts available to consult with medical organizations on CME methods, evaluate speakers on quality of presentation; provide research on learning methods; provide bibliographies on methods; develop special CME materials (e.g., course syllabi).

4. Develop plans to insure ready availability of CME throughout the State with minimum duplication, including: a short-term in residence training and related locum tenens, coordination of CME on a statewide basis, encouragement for developing new statewide CME programs as research indicates need.

GOAL B: Increase physician participation—motivation.

SCMA CCME should:

1. Encourage greater use of need identification procedures; individual physician profile, medical audit *for CME purposes*, self-assessment devices of many kinds.

2. Collect information on physicians' needs, interests, and concerns and disseminate to CME sources; assist those sources to improve quality of programs and of teaching-learning methods (e.g., effective use of audiovisual aids, how to involve learners in program planning).

3. Assist physicians called upon to teach their peers (e.g., in community hospitals) to improve their pedagogical competence—supply information on teaching materials available, help them learn how to specify goals and evaluate learning outcomes, etc.

4. Provide opportunity to publicize full range of CME among general public; arrange for professional recognition of learning achievements, aiming to increase esteem for such achievement within the medical community.

5. Assist in identifying alternatives to



Strother Pope, M. D.
Secretary



J. Howard Stokes, M. D.
Treasurer

compulsory measures; in the case of impending legislation, keep legislators and other government officials informed on desirable types of legislation and regulations.

6. Assist in comprehensive analysis and reorganization of professional responsibilities (e.g., manner of hospital organization). Encourage physicians to re-order priorities; help arrange locum tenens, or other local coverage during absence; emphasize government and professional requirements; appeal to professional and personal pride.

7. Arrange for staff and self-learning opportunities (e.g., films, TV tapes and cassettes, and audio-tapes on loan basis to hospitals and medical societies).

8. Encourage continuing dialogue among physicians—especially in small group situations—to encourage individual physician interest in continuing self-examination of clinical competence and related learning needs (if any). Provide counseling as needed to assist both individual physicians, and work-related groups (e.g., members of a hospital department), to learn how to assess and satisfy their learning needs.

GOAL C: Identify means and methods which enable individual physicians to identify their CME needs.

SCMA CCME should:

1. Provide information to individual physicians on self-assessment and similar devices that are available, emphasizing (a) methods for establishing personal criteria of quality clinical performance, (b) what CME can, and cannot, do for the individual. Encourage use of such devices, through both publicity and individual counseling.

2. Document the often made assertion that CME does (or can) in fact improve the quality of health care.

3. Sensitize medical school faculty to the need for (a) emphasizing to students the importance of achieving excellence throughout one's career, and (b) teaching methods that enable the practitioner to continue his professional growth through all of the years of practice.

4. Communicate to CME sources the crucial importance of providing learning

opportunities for physicians in a constructive and non-threatening manner.

5. Through mass communication methods (e.g., articles in the *Journal* of the SCMA, group meetings with hospital staffs and medical societies, and individual meetings with physicians), communicate the *personal* advantages of CME to the physician, and that in assessing their learning needs, there will be full privacy in such assessments.

GOAL D: Identify the continuing education needs of a given group of health professionals.

SCMA CCME should:

1. Conduct periodic research, on both a statewide and regional basis, of physicians' CME interests, needs, and concerns. Encourage CME sources—especially community hospitals and specialty societies—to conduct similar research within their respective service areas, if needed, provide instruction on techniques of survey research.

2. Solicit judgment of experts on teaching-learning methodologies that help identify needs.

GOAL E: Identify means and methods for assessing the effectiveness of CME programs.

SCMA CCME should:

1. Organize workshops on evaluation for assessing results of CME. Encourage use of the Problem-Oriented Medical Record, in both hospital and physician's office, as a means of identifying both (a) needs and (b) learning achievements (changes in behavior) of individual practitioners. In such efforts, emphasize necessity of conducting evaluation of CME outcomes at the *working* level—as close to the practice setting as possible. If needed, develop (or encourage others to develop) new instruments and devices for evaluation.

2. Provide learning opportunities (including workshops) for CME planners on techniques of (a) defining learning objectives and (b) determining the degree to which they are achieved.

3. Encourage growing critical attitudes

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CONTRAINDICATIONS: Hypersensitivity to any of the tetracyclines.
WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**
Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)
Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.
Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)
All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in tibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.
Tetracyclines are present in milk of lactating women taking tetracyclines.
To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.
Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.
PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.
In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.
Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.
In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).
Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.
Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.
ADVERSE REACTIONS: Gastrointestinal (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.
Skin: maculopapular and erythematous rashes, exfoliative dermalitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**)
Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**)
Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.
Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.
Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.
Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur.
USUAL DOSAGE: **Adults**—600 mg daily, divided into two or four equally spaced doses. More severe infections: an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, 'Rondomycin' (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q i d for a total of 5.4 grams.
For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.
Eaton Agent pneumonia: 900 mg daily for six days.
Children—3 to 6 mg/lb/day divided into two to four equally spaced doses.
Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.
Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.
In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.
In streptococcal infections, a therapeutic dose should be given for at least 10 days.
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Rev 6/73

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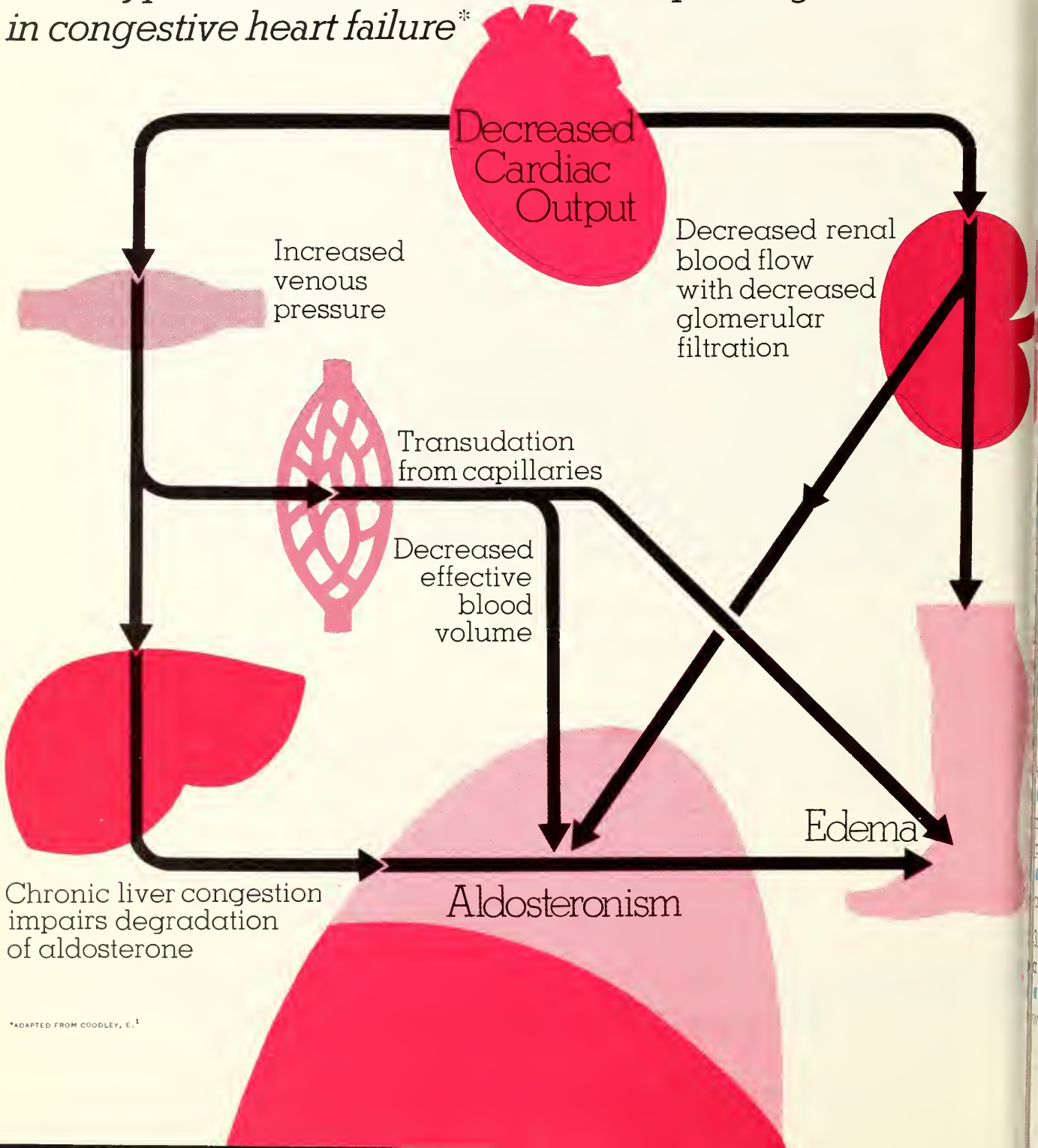
Studies show that after the first dose serum levels rapidly rise above minimum *in vitro* inhibitory concentrations

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In congestive heart failure...

secondary aldosteronism

*How hyperaldosteronism leads to and prolongs edema in congestive heart failure**



*ADAPTED FROM COODLEY, E.[1]

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To "switch off" the aldosterone factor in congestive heart failure

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hree ways to use Aldactone in ongestive heart failure

. As the only diuretic
Often sufficient alone.
Produces gradual, sustained diuresis by locking aldosterone action in the distal enal tubule.
Avoids potassium loss.

. As the basic daily diuretic with an "add-on" lternate-day-diuretic ("A.D.D." schedule)
Can be administered daily as basic nerapy with the additional agent urosemide or ethacrynic acid) given very second or third day.
Aldactone plus "A.D.D." schedule inimizes potassium deficiency and otentiates effect of "add-on" diuretic.[2]
Avoids acute volume depletion and ldosterone rebound.[2]

. As a daily diuretic in combination with daily dose of a thiazide
Permits daily additive diuretic effect vhile maintaining potassium balance.

Indications—Essential hypertension, edema or ascites of congestive heart failure, cirrhosis of the liver and the nephrotic syndrome, idiopathic edema. Some patients with malignant effusions may benefit from Aldactone (spironolactone), particularly when given with a thiazide diuretic.

Contraindications—Acute renal insufficiency, rapidly progressing impairment of renal function, anuria and hyperkalemia.

Warnings—Potassium supplementation may cause hyperkalemia and is not indicated unless a glucocorticoid is also given. Discontinue potassium supplementation if hyperkalemia develops. **Usage of any drug in women of childbearing age requires that the potential benefits of the drug be weighed against its possible hazards to the mother and fetus.**

Precautions—Patients should be checked carefully since electrolyte imbalance may occur. Although usually insignificant, hyperkalemia may be serious when renal impairment exists; deaths have occurred. Hyponatremia, manifested by dryness of the mouth, thirst, lethargy and drowsiness, together with a low serum sodium may be caused or aggravated, especially when Aldactone is combined with other diuretics. Elevation of BUN may occur, especially when pretreatment hyperazotemia exists. Mild acidosis may occur. Reduce the dosage of other antihypertensive drugs, particularly the ganglionic blocking agents, by at least 50 percent when adding Aldactone since it may potentiate their action.

Adverse Reactions—Drowsiness, lethargy, headache, diarrhea and other gastrointestinal symptoms, maculopapular or erythematous cutaneous eruptions, urticaria, mental confusion, drug fever, ataxia, gynecomastia, inability to achieve or maintain erection, mild androgenic effects, including hirsutism, irregular menses and deepening voice. Adverse reactions are infrequent and usually reversible.

Dosage and Administration—For **essential hypertension** in **adults** the daily dosage is 50 to 100 mg. in divided doses. Aldactone may be combined with a thiazide diuretic if necessary. Continue treatment for two weeks or longer since an adequate response may not occur sooner. Adjust subsequent dosage according to response of patient.

For edema, ascites or **effusions** in **adults** initial daily dosage is 100 mg. in divided doses. Continue medication for at least five days to determine diuretic response; add a thiazide or organic mercurial if adequate diuretic response has not occurred. Aldactone dosage should not be changed when other therapy is added. A daily dosage of Aldactone considerably greater than 75 mg. may be given if necessary.

A glucocorticoid, such as 15 to 20 mg. of prednisone daily, may be desirable for patients with extremely resistant edema which does not respond adequately to Aldactone and a conventional diuretic. Observe the usual precautions applicable to glucocorticoid therapy; supplemental potassium will usually be necessary. Such patients frequently have an associated hyponatremia—restriction of fluid intake to 1 liter per day or administration of mannitol or urea may be necessary (these measures are contraindicated in patients with uremia or severely impaired renal function). Mannitol is contraindicated in patients with congestive heart failure, and urea is contraindicated with a history or signs of hepatic coma unless the patient is receiving antibiotics orally to "sterilize" the gastrointestinal tract.

Glucocorticoids should probably be given first to patients with nephrosis since Aldactone, although useful for diuresis, will not directly affect the basic pathologic process.

For **children** the daily dosage should provide 1.5 mg. of Aldactone per pound of body weight.

References: 1. Coodley, E. Consultant 12:106-107, 109, 111, 113, 115 (July) 1972. **2.** Thorn, G. W., and Louler, D. P. Am. J. Med. 53:673-684 (Nov.) 1972

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All of these mammals, except one, can synthesize vitamin C



Woman (man) cannot.

Human beings can neither synthesize vitamin C nor store most of the water soluble vitamins. They should be replenished continuously.

Normally, people accomplish this in their daily diet. But under conditions of illness, stress, in convalescence or following surgery, vitamin stores may be depleted or metabolic demands increased.

In such cases, Surbex-T may be indicated. Surbex-T makes it easy and convenient to restore the water-soluble vitamins. Each tablet provides 500 mg. of vitamin C plus high potency B-complex.

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SURBEX-T® 500 mg. of Vitamin C with High Potency B-Complex

Restores what the body cannot effectively store

about available CME.

4. Provide information on *availability* and *value* of various new technological devices, and on their effective utilization in CME assessment and work to arrange shared usage of expensive facilities.

5. Work with the S. C. Medical Care Foundation to select data it generates that can be used to assess CME. Help develop functional analysis of health care activities as basis for comparison of differing practice settings and configurations.

GOAL F: Identify means of evaluating impact of CME on health care.

SCMA CCME should:

1. Sponsor educational programs on use of normal hospital activities—medical audit, tissue and utilization committee reports, inter-departmental consultation, departmental reviews, death reports, etc.—as the basis for planning CME related directly to health care.

2. Require evaluation of impact on health care as one condition for accreditation of CME programs.

3. Encourage use of standard format for medical records throughout the State. If needed, develop workshops on use of medical records in evaluating impact of CME on health care.

GOAL G: Establish regional organizations which might plan and support health education (including CME) in non-urban areas, and in urban areas lacking adequate health care.

SCMA CCME should:

1. Take leadership in developing statewide master plan for CME.

2. Help provide recognition for CME achievement by individual physicians and by regional CME sources.

3. Participate at State and assist at local level (e.g., county medical societies) in CME needs, to insure that regional programs are coordinated on a statewide basis to make most effective use of available resources.

4. Assist in improving communication among the "natural" geographic areas of South Carolina to obtain region-wide data for assessing needs and planning effective programs.

GOAL H: The use of medical audit in hospitals as a means of CME.

SCMA CCME should:

1. Sponsor workshops on how to use the medical audit in a constructive and non-punitive manner, to assess CME needs and evaluate results of CME. To this end, offer consultation service to individual hospitals.

2. Encourage use of the Problem-Oriented Medical Record. Collect and make available information on standardized record forms, and the value of using uniform medical records for CME purposes.

3. Conduct public relations programs to reassure physicians on the values of medical audit for CME purposes—partly to overcome negative feelings, partly to encourage physician support for use of the medical audit for CME purposes.

GOAL I: Identify sources of adequate funding for quality CME.

SCMA CCME should:

1. Act as central coordinating body for the State, to insure most efficient use of



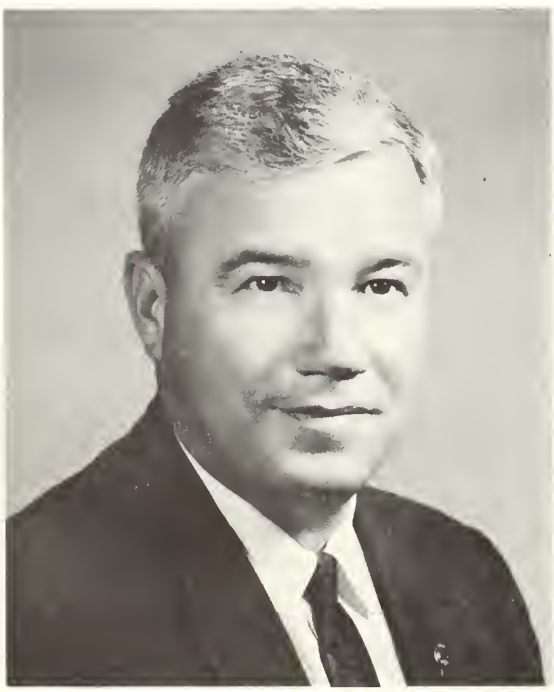
Waitus O. Tanner, M. D.
Chairman of Council

available funds. Seek to help fit new programs into existing activities to avoid wasteful duplication of effort. Coordinate and focus physician demands for CME to assist CME sources in efficient planning, on statewide basis, by collecting and disseminating relevant data on physicians' needs, interests, and concerns.

2. Assist CME programs planners in devising means to justify fund expenditure in terms of improved quality care.

3. In order to provide means for (a) unusually expensive CME activities and (b) individual physicians unable to pay the ordinary costs of continuing education, encourage the development of physician contributions to establish a "Committee on Continuing Medical Education Fund." Explore reliable financing mechanisms such as (a) contributions via county and state medical society dues, (b) increased cost of State license renewal fee for CME purposes, (c) encourage specific CME program budgeting by the MUSC to supply short-term in-residence training and other MUSC-sponsored continued medical education.

4. Serve as voice of South Carolina medicine with respect to need for Federal and State funding of local needs, and work to influence State policy with respect to allocation of budgets toward CME needs.



C. Tucker Weston, M. D.
Alternate Delegate to A. M. A.

Committee on Cooperative Activities

The Committee on Cooperative Activities of the South Carolina Medical Association met at 8:00 A.M. on December 9, 1973 at the Carolina Inn in Columbia, South Carolina in conjunction with the special called meeting of the South Carolina Medical Association. Members present were: Dr. Daggett O. Royals, Chairman, Dr. Hunter Rentz, Columbia, Dr. S. Perry Davis, Pinewood, Dr. James G. Johnson, Orangeburg, and Dr. William C. Cantey, Columbia.

The Chairman reported that the various subcommittee chairmen under the Committee on Cooperative Activities had been contacted by telephone for a committee report, the substance of which will be presented in this report.

I. Appointment of New Members to Various Subcommittees

The retiring members of each subcommittee were discussed by the Committee on Cooperative Activities and those members whose terms were expiring were either re-appointed or a new member appointed to replace the retiring member. A copy of the make-up of the various subcommittees follows this committee report.

II. Reorganization of the Subcommittees

A rather lengthy discussion followed regarding the advisability of discontinuation of all of the various subcommittees which have been perpetuated year after year. After considerable discussion, it was recommended by this committee that the following committees be abolished in view of the fact that these committees are not active, have not met in several years and apparently serve no useful function. These committees are:

1. Committee on Liaison With Allied Professions.

2. Committee on Mental Retardation.
3. Committee on Eye Bank.

After considerable discussion and questions it is suggested by the Committee that the President of the South Carolina Medical Association appoint a single consultant in each of these specialty fields to act in an advisory capacity and function in place of the subcommittee when the need arises.

An alternate method suggested by the Committee would be to have the President of the South Carolina Medical Association appoint an Ad Hoc Committee only when the need arises to function in the various specialty fields.

The Chairman of each subcommittee was contacted by telephone and it became apparent that the following committees were active and serve useful functions and these committees should be continued:

1. Committee on Religion and Medicine

This committee is very active and Dr. Robert Goldie, its Chairman, presented an interesting program at the luncheon of the delegates at the special called meeting on December 9, 1973. In addition to this Dr. Goldie is in the process of organizing regional work shops of this committee in an attempt to have better liaison with the clergy and various other organizations connected with hospitals and communities.

2. Advisory Committee to Woman's Auxiliary, South Carolina Medical Association.

It is recommended that the committee chairman be the husband of the current President of the Woman's Auxiliary. It is also recommended that the other members be the husbands of the immediate past President and President-Elect of the Woman's Auxiliary of the South Carolina Medical Association. The current President of the South Carolina Medical Association and the Executive Secretary of the South Carolina Medical Association should serve as ex officio members of this committee.

3. Advisory Committee to South Carolina Crippled Children's Society

This committee is active and to some degree acts more in an advisory capacity but should be continued.

4. Committee on Medical Aspects of Sports

This committee has been active in organizing programs in the prevention of injuries in high school and college athletics and this committee should be continued.

5. Advisory Committee to South Carolina Vocational Rehabilitation Department

This committee is appointed entirely by the State Department of Vocational Rehabilitation and the Committee on Cooperative Activities has no function in the make-up of the committee and was unable to contact its Chairman for a current committee report.

6. Committee on Alcoholism and Drug Addiction

This committee is chaired by Dr. Hunter Rentz of Columbia and is active. A resolution was presented to the delegates at the meeting of the South Carolina Medical Association on December 9, 1973. This committee is establishing liaison with the Legislature to some degree regarding alcoholism and drug addiction and should be continued.

Daggett O. Royals, M.D.
Chairman

COMMITTEE ON COOPERATIVE ACTIVITIES
1974 SUBCOMMITTEES

		TERM EXPIRES
ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY		
Leonard W. Douglas, Chairman	Belton	1976
J. Ray Ivester	Charleston	1976
Wayne Brady	Greenville	1976
Harold Hope, Ex Officio	Union	
Charles Johnson, Ex Officio	Columbia	
COMMITTEE ON ALCOHOLISM AND DRUG ADDICTION		
Hunter Rentz, Chairman	Columbia	1976 (R)
Harold W. Moody	Spartanburg	1974
Martin Keeler	Charleston	1974
William F. Ward, Jr.	West Columbia	1975
Danny R. Blackwell	Kershaw	1975
William S. Hall, Ex Officio	Columbia	1975
COMMITTEE ON EYE BANK		
Welbourne A. White, Chairman	Columbia	1974
David S. Asbill	Columbia	1974
James H. Gressette	Orangeburg	1974
Clay W. Evatt, Jr.	Charleston	1974
George R. Cousar, Jr.	Greenville	1976 (R)
VACANCY	.....	1975
COMMITTEE ON RELIGION AND MEDICINE		
Robert F. Goldie, Chairman	Columbia	1975 (R)
Vernon Jeffords	Spartanburg	1974
Jimmie H. Carpenter	Seneca	1974
William Young	Sumter	1976
B. L. Barnett, Jr.	Charleston	1975
William F. Ward, Jr.	West Columbia	1975
James N. Craigie	Loris	1975
COMMITTEE ON LIAISON WITH ALLIED PROFESSIONS		
Walter R. Wiley	Chesterfield	1974
COMMITTEE ON MENTAL RETARDATION		
Roy Suber, Chairman	Clinton	1976 (R)
Guy Castles	Columbia	1974
Frank Wrenn	Greenville	1974
Bruce Ford	Spartanburg	1974
Louis P. Jervey	Charleston	1974
ADVISORY COMMITTEE TO CRIPPLED CHILDREN'S SOCIETY		
Joseph I. Waring, Chairman	Charleston	1974
Milton C. Westphal	Charleston	1974
Julian P. Price	Florence	1974
C. Dayton Riddle	Greenville	1976
Marion R. Caughman	Orangeburg	1976
C. Guy Castles, Jr.	Columbia	1975 (R)
R. C. Brownlee	Greenville	1975 (R)
William Weston, Jr., Honorary	Columbia	1975 (R)
Harold Hope, Ex Officio	Union	
COMMITTEE ON MEDICAL ASPECTS OF SPORTS		
E. M. Lunceford, Chairman	Columbia	1976 (R)
James L. Hughes	Chester	1974
W. R. Henderson	Spartanburg	1974
Charles Wannamaker	N. Charleston	1974
William B. Evins	Greenville	1974
James G. Johnson	Orangeburg	1975 (R)
Judson E. Hair	Clemson	1976 (R)
William Strohecker	Columbia	1975
S. Edward Izard	Charleston	1976

MEDICAL ADVISORY COMMITTEE TO S. C. VOCATIONAL REHABILITATION DEPARTMENT (Nominated by State Voc. Rehab. Agency)

Ben N. Miller, Chairman	Columbia		1976
C. Edward Floyd	Florence		1976
E. Darrell Jervey	Greenville		1976
Richard M. Christian	Greenwood	I.M.	1976 (R)
Albert F. Aiken	Charleston	N.	1976 (R)
Harry J. Metropol	Columbia	G.S.	1974
A. Frank Weir, Jr.	Spartanburg	O.T.O.	1974
Robert N. Milling	Columbia	Psy.	1974
Roy E. Hudgens, Jr.	Florence	Anes.	1975
Malcolm L. Marion	Chester	G.P.	1975
Charles P. Summerall, III	Charleston	I.M.	1975
Roland M. Knight	Greenville	Orth.	1975
Joseph H. Miller, III	Columbia	Uro.	1975
E. Kenneth Aycock	Columbia	State Health	

Committee on Historical Medicine

This Committee has had no action of its own this year. The chairman is also serving as chairman of the committee for celebration of the Sesquicentennial year of the Medical University of South Carolina (1974-75).

Joseph I. Waring, M.D.
Chairman

Committee on Industrial Medicine

The committee primarily has worked on problems related to Workers' Compensation since its inception. Dr. J. Hal Jameson, a past member, continues as advisor, and Dr. Eugene Payne, who is medical consultant to The S. C. Industrial Commission, has met with us regularly as liaison to the Industrial Commission.

In our April meeting, pending legislation was discussed. Up to date information indicates that:

1. The current $63 per week maximum Workers' Compensation will be increased this year to sixty-six and two-thirds percent of the average weekly industrial wage in this state. At present this would be about $80.00
   Federal law will require this anyway by January 1975.
   The death benefit will increase to $40,000 from $13,000.
2. Currently, the employer of 6 or more must be covered by Workman's Comp., but this year a law is expected to be passed which will require an employer of two or more to be covered.
3. All occupations are to be covered except domestic. Currently sawmills, logging and planing are excepted.

The Committee has met in Columbia on April 23, 1973, August 8, 1973, September 5, 1973, October 31, 1973, and December 8, 1973.

At each meeting, Dr. Payne presented individual cases for advice in determining final disposition. Usually these cases related to some question of excessive charges.

The Industrial Commission was asked to increase the unit value of our present Fee Schedule from 6 to 7. They agreed to do this, but our committee felt that a revision of the Fee Schedule was in order. One of the major reasons for revision is to decrease the number of non-codable procedures and fees which require personal review and evaluation. This will expedite filing and payment of claims. Specific changes are to include more detailed instructions and explanations so that medical secretaries can more accurately complete the forms to be submitted.

We plan to recommend simplification of the current forms 13 & 14 and add a

supplemental form 13A which will serve as a simple progress report.

Changes in the Fee Schedule are to include increases sufficient to obtain competent psychiatric, ophthalmological, neurological, neurosurgical and the super specialties such as plastic and hand surgeons. In addition, we plan to include realistic specific number of days for follow-up treatment.

Probably, the effectiveness of the committee is best illustrated by the development of good rapport with the individual Industrial Commissioners at annual social dinners. This has brought about sufficient camaraderie so that the Commission has felt comfortable and free to present us with many of their individual problems related to hearings and has also resulted in acceptance of more deposition by appointment rather than subpoena for hearings.

W. J. Goudelock, M.D.
Chairman

Committee on Mental Health

The Committee on Mental Health was expanded this year by adding as consulting members representatives from internal medicine, pediatrics, and family practice. This has proved to be a desirable move and it is recommended that it be continued.

Senate Bill 539, which deals in part with admission procedures to the South Carolina State Hospital, was considered in length by the Committee, and much opposition was expressed to the change in commitment procedures.

Under the present provisions of the Bill, an individual who was considered dangerous to himself and others could be sent immediately to the State Hospital but would have to be returned to his county of origin for two adversary type hearings to which witnesses would be subpoenaed. For the commitment of a person, under provisions similar to what is now medical certification, a delay of several days is required and at least one adversary type hearing in which witnesses would be subpoenaed. The Bill would also provide for certain "designated examiners." The Committee expressed great concern about this bill. At the time of this writing, the counsel for the State Medical Association is following the bill and it is hoped that significant modifications will be achieved.

The Committee on Mental Health and the S. C. Medical Association are to be co-sponsors with the American Medical Association and five other southeastern states to the first AMA-Southeastern Regional Mental Health Conference at the Marriott Hotel in Atlanta, Georgia. This is the first such conference sponsored by the AMA staff and the state medical associations of the six southeastern states. The topic is "Public and Private Mental Health Care—Quo Vadis?".

Efforts in Spartanburg County to convert twenty general medical and surgical beds to psychiatric beds by a private hospital have been repeatedly blocked under provisions of the Hospital Franchising Act. Over a year has elapsed since the original application, and the beds are still unused.

A continuing problem is the limited number of anti-psychotic drugs on the Medicaid Formulary. Increasing the spectrum of anti-psychotic drugs would result in only a small increase in cost but considerable increase in the effectiveness with which the mentally ill could be treated.

R. Bruce Ford, M.D.
Chairman

Emergency Medical Services Committee

Governor West has continued his interest and emphasis on Emergency Medical Services for South Carolina. This governmental interest, added to that of the many organizations interested in emergency health services, resulted in extensive work on the South Carolina State Plan for Emergency Health Services. Such a plan has now been drawn up and has been accepted by the Department of Transportation as a basis for funding to South Carolina by DOT under the Emergency

Medical Service Standard of The Federal Highway Safety Program. This plan has not been finally reviewed by the SCMA Committee but soon will be. Basically, it is what we have been working toward for a number of years.

With the change in the structure of the Board of Health resulting in less physician input, our EMS Committee has increased its representation on the EMS Advisory Council to the State Board of Health and Environmental Control. Along these lines, an Office of Project Coordination has been established between the South Carolina Department of Health and Environmental Control and the Medical University of South Carolina to assure that the expenditure of emergency medical services funds will be used to the most efficient and effective advantage for the State of South Carolina. This again should add physician input and seems a step in the right direction.

Lastly, there is now legislation (February, 1974) before the House and Senate in the form of an Emergency Medical Services Bill. Efforts are presently underway by our EMS Committee to follow and direct the course of this bill.

Edmund R. Taylor, M.D.
Chairman

Insurance Committee

The Insurance Committee with the approval of the South Carolina Medical Association Council has instituted through Blue Cross-Blue Shield a health care and life insurance package providing the best benefits for our Association members at the lowest possible cost. At a later date we will offer a more Spartan second plan without life insurance for the members desiring lesser coverage.

The SCMA Council has voted to establish the Subcommittee on Professional Liability Insurance as a standing committee of the Association. This committee will function separately from the Insurance Committee.



John Hawk, M. D.
Delegate to A. M. A.



Thomas Parker, M. D.
Delegate to A. M. A.

The SCMA Council has approved the new revised code and nomenclature of Blue Shield. The SCMA is to set up an effective Peer Review Committee procedure to determine the reasonableness of fee arbitration. We have a commitment that by July 1, 1974, Blue Cross-Blue Shield will honor assignment of benefits. This will be made easy as there is a space provided for this on the newly adopted standard insurance form approved by the American Medical Association. When the above becomes a reality, we would encourage the physicians to use the coding to expedite their claims and to eliminate "middleman" coding errors.

The Insurance Committee has established a subcommittee to investigate and deal with problems being experienced by physicians in filing claims with Blue Cross-Blue Shield.

As you see, we have a very active committee working constantly to keep abreast of all matters relating to its function. At times the situation is difficult but with cooperation and understanding from our Association members, we can do the job.

Harry J. Metropol, M.D.
Chairman

Public Relations Committee

For the first time in current history the Public Relations Committee report will be submitted by a chairman other than Dr. Joe Waring, who served long and well as chairman of the Public Relations Committee. Dr. Waring voluntarily relinquished chairmanship after seven years of involuntary servitude.

The Public Relations Committee has been a relatively active committee, thanks to the excellent cooperation of the several members. Under authorization by Council the Public Relations Committee has undertaken the following endeavors:

1. A very successful publicity campaign for the 1973 annual meeting at Myrtle Beach and the 1973 mid winter meeting in Columbia, with the very effective help of Leroy Harrelson and Associates. These meetings received unusual visibility throughout the state under the direction of Mr. Harrelson.
2. A campaign for the development of a new symbol or logo for the S. C. Medical Association is in its beginning stages. The plan is to have a contest running from May of 1974, concluding with the annual meeting in May of 1975, at which time the selection of the winning new design for our logo will be announced and an appropriate prize awarded. It is hoped that a $1,000 prize can be accumulated through donations by ethical pharmaceutical houses. Many pharmaceutical firms have been contacted and have shown some interest, although the prize is not fully funded as of this time.
3. An information and orientation brochure is in the planning stages. This brochure, when completed, will be presented to each new member of the SCMA, and will acquaint him with the function and assistance available from SCMA to all its members, and will also introduce him to the rules, regulations, practices, and customs of the ethical medical practitioners in our state.
4. The Public Relations Committee has made recommendations and strongly urges their continued emphasis and implementation of measures to improve both the availability and the public awareness of the high quality of medical practice in South Carolina. This is a continuing and ongoing effort and is viewed as the major role of the Public Relations Committee at this time.

Edward E. Kimbrough
Chairman

SCMA Medical Advisory Committee to The South Carolina Vocational Rehabilitation Department

The Medical Advisory Committee to the Vocational Rehabilitation Department held its scheduled meeting Thursday, February 7, 1974, 6:30 p.m., at the Hilton Town House, Columbia, South Carolina, with Dr. Ben N. Miller, Chairman, presiding. Other committee members present were: Dr. E. Kenneth Aycock, Dr. Richard M.



Harrison Peeples, M. D.
Alternate Delegate to A. M. A.

Christian, Dr. C. Edward Floyd, Dr. E. Darrell Jervey, Dr. Roland M. Knight, Dr. Harry J. Metropol, Dr. Robert N. Milling, and Dr. A. Frank Weir, Jr. Personnel of the Vocational Rehabilitation Department attending were: Dr. Dill D. Beckman, Commissioner; Mr. Joe S. Dusenberry, Deputy Commissioner; Mr. T. E. Ringer, Jr., Assistant Commissioner, Administration and Special Services; Dr. Robert E. Brabham, Supervisor, Psychological Services—Training; Mr. C. J. Collins, Supervisor, Rehabilitation Services Division; Mr. Ben J. Marett, Director, Disability Determination Division; Mr. James McClary, Supervisor, Workshops—Facilities; Mr. George Cleckler, Supervisor, Vocational rehabilitation Public Schools and Youth Services; and Miss Willie Bush Deason, Staff Assistant.

The Chairman welcomed the committee and recognized Dr. Beckman.

Dr. Beckman discussed the new Vocational Rehabilitation law. When the Senate authorized services to the severely disabled, this was not a new field for Rehabilitation since we had already worked with some at the Medical University Hospital. Rehabilitation is one of the oldest grant and aid programs. Congress allowed $590 million and now $40 million more has been allowed. As a consequence of our becoming more affluent, our amount will go down but the new law states that we would not have less than we had before.

When Supplemental Security Income (SSI) was voted, Rehabilitation was chosen to make the determinations for Social Security. The Disability Determination Division will handle them.

When the Homestead Act allowing the $10,000 exemption if disabled was passed, the Legislature requested that Rehabilitation be responsible for making the determinations.

The Chairman called on Mr. Dusenbury to explain why Vocational Rehabilitation is working with the Manpower programs to determine their vocational potential. Mr. Dusenbury made the following explanation. We feel that we should be the agency that makes determinations concerning Rehabilitation. The State Government agreed. It would be better for the medical screening to be done by Rehabilitation and we want to do it rather than get other agencies involved. A number of the people are not eligible for Rehabilitation but we would rather work with them and make the determinations. Those not able to participate in the Manpower Program are turned over to Rehabilitation. We feel that by Rehabilitation working with them that it helps to avoid duplication of services and confusion. Some physicians might wonder why we are working with those who are not eligible but we feel that all should have a medical examination. Since we have a good relationship with the physicians, we prefer to make the determinations. The money comes from a Manpower appropriation and is not a part of our normal funds. This work is done by contract.

During the discussion period which followed, Dr. Aycock stated that they had

always worked with Rehabilitation and he knew of no problem.

Dr. Metropol felt that he would know how to answer a question concerning Rehabilitation working with the people on the Manpower programs as a consequence of Mr. Dusenbury's discussion.

Dr. Milling wanted to know if a study had been made of the mental cases and was told that a study had been made of cases including some mental cases and the results for the mental cases were excellent. After further discussion it was brought out that Rehabilitation is always willing to accept referrals that meet the requirements as set up under the Rehabilitation Act.

Dr. Jervey discussed the relationship of the Vocational Rehabilitation Department to the Commission for the Blind and the Department particularly as it relates to the cataract cases.

Dr. Knight would like to know if some arrangements could be made to house amputees outside the hospital so they could be adequately trained to use prostheses.

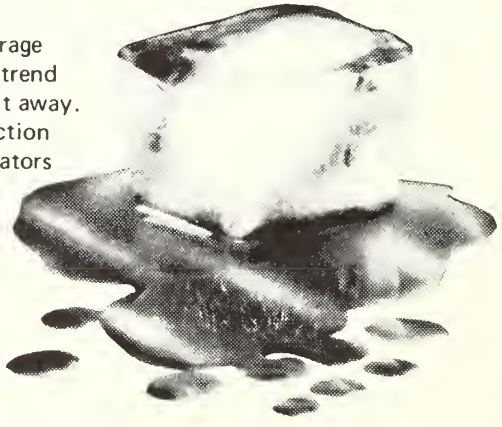
Mr. Marett said that since 1957 he had asked the profession to work with him and that he had appreciated their cooperation. Now, he wants them to help with the SSI.

All members of the committee entered freely into the discussion and offered helpful suggestions and comments.

Ben N. Miller, M.D.
Chairman

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SOUTH CAROLINA DEPARTMENT OF MENTAL HEALTH

WILLIAM S. HALL, M. D.
STATE COMMISSIONER OF MENTAL HEALTH

COLUMBIA — Indications are that the new 186-bed Alcohol and Drug Addiction Treatment Center of the South Carolina Department of Mental Health will be operational sometime this summer, it has been announced by Dr. William S. Hall, State Commissioner of Mental Health.

The new facility is now nearing completion on a lake site about seven miles from Columbia and adjacent to Crafts-Farrow State Hospital off S. C. Highway 555.

The Center has been under construction for the past 15 months and had originally been scheduled for completion this past January with patients to be admitted sometime in March.

Phillips Construction Co. of Gaffney was the low bidder on the $3 Million-plus treatment center which closely follows the Department's "village" concept in construction. But financial difficulties on the part of the original contractor forced transfer of the project to Kinsey Construction Co. last October, Dr. Hall explained.

In addition, certain structural modifications in several of the cottages have occupied additional construction crew time.

"At this point, and barring any further unforeseen delays, we are projecting a completion of the facility sometime in July with the hope that we can begin admitting patients in the late summer," the Commissioner said.

Again, much will depend upon the arrival and installation of equipment and furniture and other routine facility preparation.

C. M. Tucker, Jr. of Pageland, Chairman of the South Carolina Mental Health Commission, the governing board of the Department of Mental Health, noted that the Commission has indicated it wished to have everything in order before patients are accepted.

"Almost without fail, in the case of new facilities, the Department has been forced into premature openings because of the urgency to meet the needs of patients. But in the final analysis, this is not only impractical and non-professional, but it works against the best interest of the patients to place them into a treatment environment which is incomplete or such that the staff must divide its attention between patient needs and the preparation of the facility," Dr. Hall said.

The treatment Village, situated on the shore of a 76-acre lake, is composed of 22 buildings of which 14 are resident cottages housing 12 persons each. Other buildings will provide work space for the treatment programs, administrative offices, an 18-bed admission unit, recreational facilities, five dining rooms, and laundry facilities.

The planning responsibility for the addiction center was shared by an interdisciplinary team of professionals of the S. C. Department of Mental Health, Dr.

Hall, the Community Mental Health Centers, and the Health Care Facility Planning and Design Studio of Clemson University under the direction of Prof. George Means.

Meanwhile, the Department continues to make full use of the 48-bed pilot demonstration-treatment project being conducted in a separate building on the campus of Crafts-Farrow. Dr. Kenneth Waggett is medical director for this special unit.

It is already apparent, based on the operational experience of the pilot project, that the 186 beds of the new facility will not completely serve the needs of the state and that the Department will continue to be called on to provide services for the chronic cases of addiction, Dr. Hall has noted.

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SCMA

The South Carolina Medical Association has been certified by the American Medical Association for conducting its own evaluation and accreditation of programs of continuing education conducted for doctors by medical institutions and organizations in South Carolina, it was announced today by Dr. Vince Moseley of Charleston.

S.C.M.A. is one of the first medical associations in the nation to be approved as a state accrediting agency by the AMA.

Moseley is chairman of SCMA's Committee on Medical Education which will be the certifying group for accreditation. He is a member of the Division of Continuing Education of the Medical University of South Carolina.

SCMA's 12-member Committee on Medical Education will immediately assume responsibility for accrediting programs, an activity up to now conducted directly by AMA committees and national medical specialty organizations. Approval of programs for accreditation by the SCMA Committee will mean approval by the AMA.

"The accrediting program is voluntary," Moseley said. "However, we strongly urge hospital medical staffs and county medical associations to apply for accreditation of their programs so that the individual physicians participating will be given credit for the AMA Physicians Recognition Award for Continuing Medical Education."

Committee members include Dr. Hiram B. Curry, Charleston; Dr. John W. Brown and Dr. Joe E. Freed, both of Columbia; Dr. C. E. Floyd, Florence; Dr. Laurie N. Ervin, Greenville; Dr. William Klauber and Dr. Mims Mobley, Jr., both of Greenwood; Dr. Joel Wyman, Anderson; Dr. Robert H. Burley, Clemson; Dr. J. Anthony White, Easley; and Dr. Loren F. Parmley, Spartanburg, ad hoc member.

The committee will arrange for survey teams to visit community hospitals and other medical institutions and organizations which request accreditation of their education programs. Such programs are those aimed at updating knowledge, adding new information and aiding mastery of specific skills and techniques of practicing doctors who must constantly be engaged in the educational process in order to improve the health and well being of the individual patient and the public.

The SCMA education committee's activity will be directed to assisting medical staffs of community hospitals in the production of continuing medical education programs of worth and relevance, with evaluation processed to measure their effectiveness, and to provide a basis for accreditation.

The ultimate goal is to encourage community hospitals in South Carolina to develop activities that may be accredited so their professional staff members can obtain much of their education in their own community.

For Further Information Contact:
W. LeRoy Harrelson Associates, Inc.
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MEDICAL UNIVERSITY OF SOUTH CAROLINA NEWS

Dr. Moseley Honored

Physician graduates from over a period of two decades gathered in Charleston Friday night to honor their former teacher, Dr. Vince Moseley, with a portrait presentation.

The portrait, the work of Charleston artist Ray Goodbred, will be placed in the Department of Medicine at the Medical University of South Carolina where Dr. Moseley trained many of the physicians currently in practice in South Carolina.

Dr. Moseley is coordinator of the South Carolina Regional Medical Program, a program cited this past January by the South Carolina Hospital Association for care in the state. He also is director of the Medical University's Division of Continuing Education.

A number of states were represented

by guests attending the dinner and presentation at the Colony House. Dr. James B. Berry of Marion served as master of ceremonies. Dr. Berry along with Dr. John F. Buse and Dr. Walter M. Bonner, both professors of medicine at the Medical University, were co-chairmen of the Vince Moseley Portrait Fund.

In each of the last three years special recognition has been paid to Dr. Moseley by various groups for excellence as a teacher and dedicated physician. In 1971 he was given the Dedicated Service and Staff of the Medical University. The following year he was named an "Outstanding Educator of America", and in 1973 he received the Distinguished Faculty Award of the MUSC Medical Alumni Association.

Among other honors, he has been recipient of a special Humanitarian Award from Lake City, S. C.; the Durkee Award for Outstanding Contributions to the Care of the Retarded; and the Wisdom Award of Honor.

Dr. Moseley is especially well known in South Carolina for his work in behalf of retarded children. The Diagnostic Clinic Building, opened in Charleston in 1966, was named after him. He served as chairman of the board of trustees of the South Carolina Retarded Children's Habilitation Center and currently is a member of the State Commission for Mental Retardation.

A native of Orangeburg, S. C., Dr. Moseley attended Clemson College and received his A.B. and medical degree from Duke University. During World War II he headed the medical service of a 1,000-bed hospital in Panama and later served as Chief of Officers Section and Assistant Chief of Medical Section at Letterman General Hospital in San Francisco.

He has been a member of the Medical University faculty for 27 years, at one time serving as dean of clinical medicine. He also was chief of Medical Service at the Charleston VA Hospital.

Dr. Moseley is a former trustee of Presbyterian College and a trustee currently of Palmer College.

PRESCRIBING INFORMATION
Antiminth (pyrantel pamoate) Oral Suspension

Actions. Antiminth (pyrantel pamoate) has demonstrated anthelmintic activity against *Enterobius vermicularis* (pinworm) and *Ascaris lumbricoides* (roundworm). The anthelmintic action is probably due to the neuromuscular blocking property of the drug.

Antiminth is partially absorbed after an oral dose. Plasma levels of unchanged drug are low. Peak levels (0.05-0.13μg/ml.) are reached in 1-3 hours. Quantities greater than 50% of administered drug are excreted in feces as the unchanged form, whereas only 7% or less of the dose is found in urine as the unchanged form of the drug and its metabolites.

Indications. For the treatment of ascariasis (roundworm infection) and enterobiasis (pinworm infection).

Warnings. *Usage in Pregnancy:* Reproduction studies have been performed in animals and there was no evidence of propensity for harm to the fetus. The relevance to the human is not known.

There is no experience in pregnant women who have received this drug.

Precautions. Minor transient elevations of SGOT have occurred in a small percentage of patients. Therefore, this drug should be used with caution in patients with pre-existing liver dysfunction.

Adverse Reactions. The most frequently encountered adverse reactions are related to the gastrointestinal system.

Gastrointestinal and hepatic reactions: anorexia, nausea, vomiting, gastralgia, abdominal cramps, diarrhea and tenesmus, transient elevation of SGOT.

CNS reactions: headache, dizziness, drowsiness, and insomnia. Skin reactions: rashes.

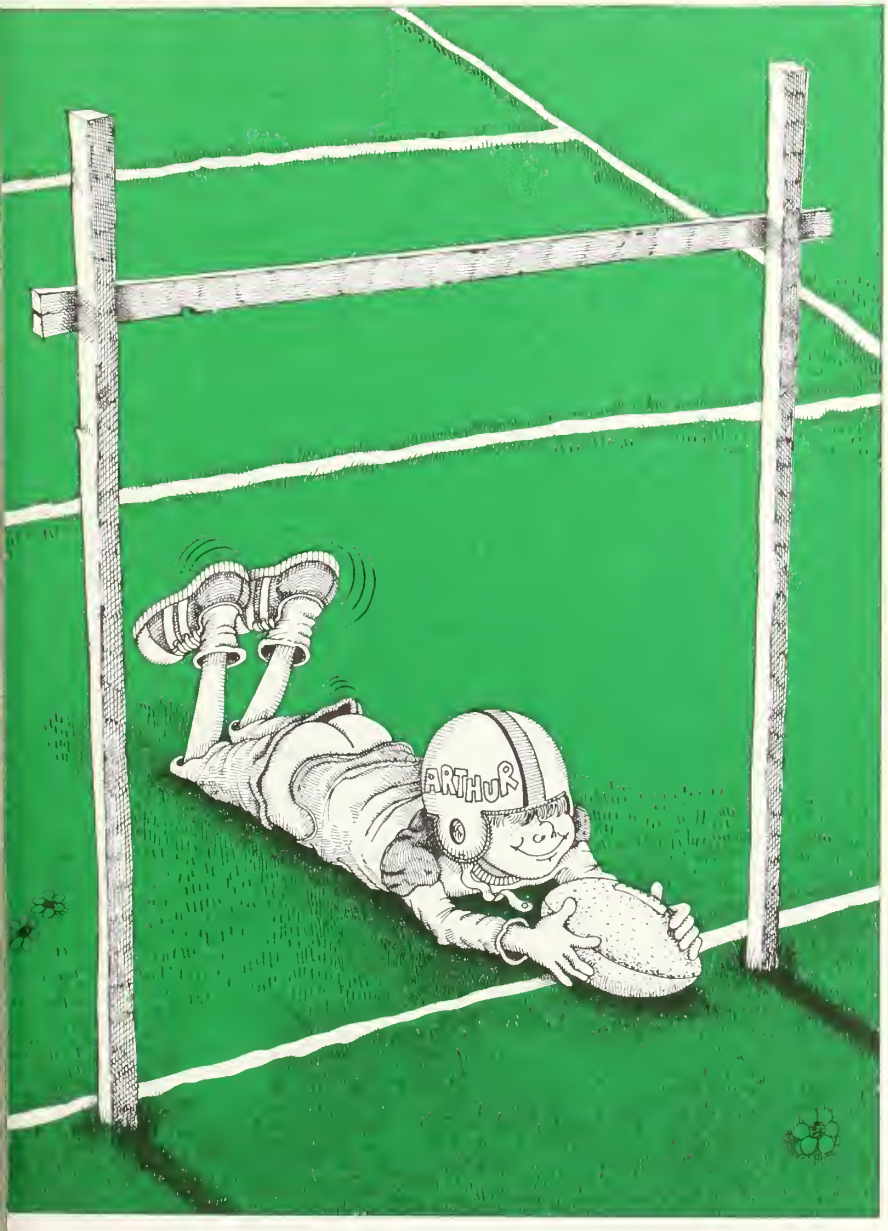
Dosage and Administration. *Children and Adults:* Antiminth Oral Suspension (50 mg. of pyrantel base/ml.) should be administered in a single dose of 11 mg. of pyrantel base per kg. of body weight (or 5 mg./lb.); maximum total dose 1 gram. This corresponds to a simplified dosage regimen of 1 cc. of Antiminth per 10 lb. of body weight. (One teaspoonful = 5 cc.)

Antiminth (pyrantel pamoate) Oral Suspension may be administered without regard to ingestion of food or time of day; and purging is not necessary prior to, during, or after therapy. It may be taken with milk or fruit juices. Because of limited data on repeated doses, no recommendations can be made.

How Supplied. Antiminth is available as a pleasant tasting caramel-flavored suspension which contains the equivalent of 50 mg. pyrantel base per ml., supplied in 60 cc. bottles.

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Brief Summary

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Federal law prohibits dispensing without prescription.

References:

1. Melges, F. J.: Obstet. Gynecol. *24*:921, Dec. 1964. **2.** Cameron, P. F.: Practitioner *202*:695, May 1969. **3.** Olsen, J. R.: Journal-Lancet *85*: 287, July 1965. **4.** Giorlando, S. W.: OB/GYN Digest *13*:32, Sept. 1971. **5.** Decker, A.: Case Reports on file, Medical Department, Julius Schmid. **6.** Friedel, H. J.: Md. State Med. J. *15*:36, Feb. 1966. **7.** Roberts, C. L. and Sullivan, J. J.: Calif. Med. *103*:109, Aug. 1965. **8.** Giorlando, S. W., Torres, J. F. and Muscillo, G.: Am. J. Obstet. Gynecol. *90*:370, Oct. 1, 1964. **9.** Abruzzi, W. A.: Western Med. *5*:62, Feb. 1964.

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MUSC Sesquicentennial

The 150th birthday of the South's oldest medical school, the Medical University of South Carolina's College of Medicine, will be celebrated during the year starting at Commencement on June 6.

Time period and details of the special anniversary were announced today by Dr. Joseph I. Waring, chairman of the school's Sesquicentennial Committee.

During the course of the year all medical specialties will be presenting programs featuring leaders in their fields as Sesquicentennial speakers.

"It will be a most eventful year in the history of South Carolina medical education," Dr. Waring noted. "In addition, numerous scientific and professional societies are correlating their annual assemblies with the Sesquicentennial."

There will be several lasting mementoes of the occasion. A bronze medallion designed by Willard Hirsch has been struck and a hard cover book of historical essays published, both to go on sale in May. A larger version of the medallion will be placed outdoors permanently on a base in front of the Library-Administration Building. A brief historical movie is to be made available to the public.

Special note of the celebration is being taken by medical journals. The July 1974 issue of the *Southern Medical Journal* is being devoted to a history and scientific articles prepared by the College of Medicine faculty. The June number of the *Journal of the South Carolina Medical Association* will contain articles on current activities of the various departments of the medical school, as well as a sketch of the historical developments of the institution.

Two days of formal recognition have been scheduled, June 6 for the award of honorary degrees, and November 1 for honoring selected alumni at a Founders Day banquet.

A program of particular interest to the public is being planned under the guiding theme of perspectives in health care.

Serving as co-chairman of the Sesquicentennial Committee is Dr. W. Curtis Worthington. The subcommittee chairmen are Dr. Curtis P. Artz, scientific activities; Dr. H. R. Pratt-Thomas, historical and cultural activities; and William D. Huff, publicity and technical aspects.

Among the organizations holding conventions here in conjunction with the Sesquicentennial will be the American Association for the History of Medicine, South Carolina Surgical Society, the University Surgical Residents, South Carolina Academy of Sciences, Southeastern Region of the American College of Physicians, the Whipple Society and Society of Surgical Chairmen, the Mason-Dixon District of the American College Public Relations Association, Southeastern Chapter of the Biological Photographic Association, and the Carolinas Hospital Public Relations Society.

Also, the Southeastern Dialysis and Transplant Association, Piedmont Proctologic Society, First Annual National MEDEX Conference, South Carolina Chapter of the American Academy of Family Physicians, South Carolina Medical Association Winter Meeting. Southern Region of the American Association of Certified Orthoptists, and the American College of Physicians Postgraduate Session (Pulmonary Disease Course).

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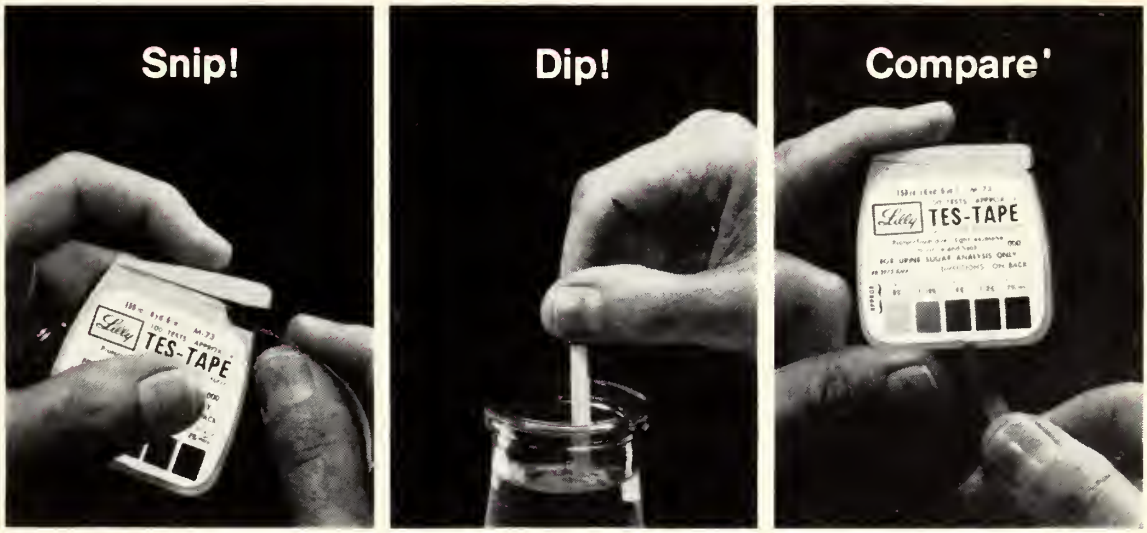
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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomitin and sweating). Keep addiction-pron individuals under careful surveillance because of their predispositio to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

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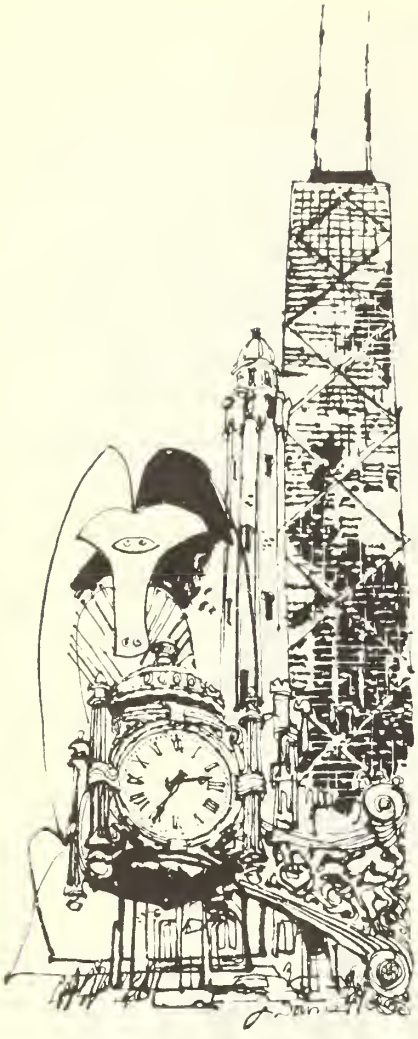
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ate its action. Usual precautions
ndicated in patients severely de-
ressed, or with latent depression,
with suicidal tendencies. Observe
sual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association. Business office: 1508 Washington Street, Columbia, South Carolina 29201.

Subscription price: $6.00 in the U. S. ($7.00 per year, Foreign) Second Class Postage paid at Columbia, S. C. and at additional mailing offices.

The views expressed in this publication are those of the writers and do not necessarily reflect the opinions of the South Carolina Medical Association

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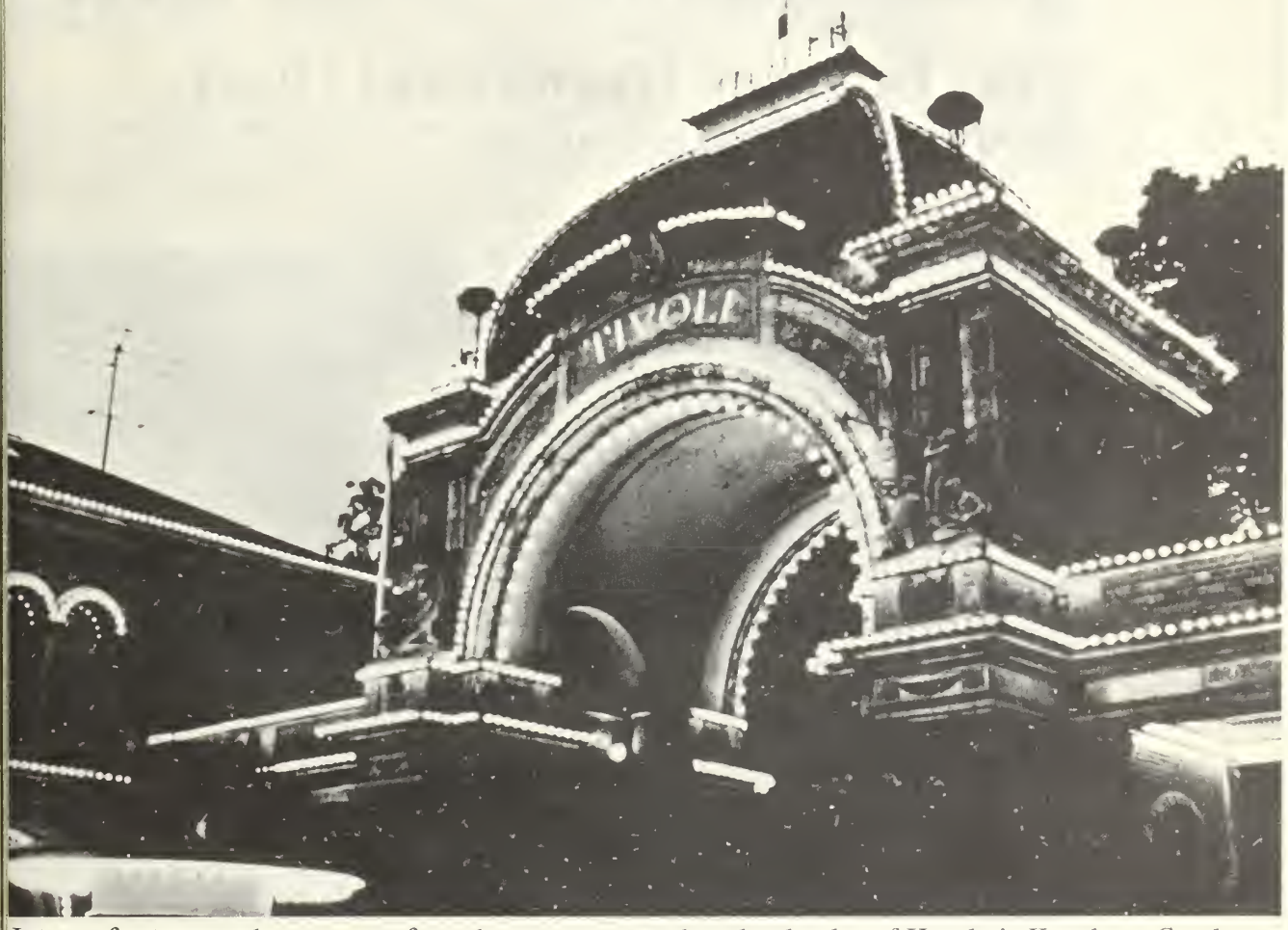
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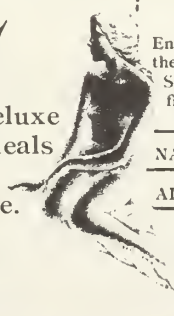
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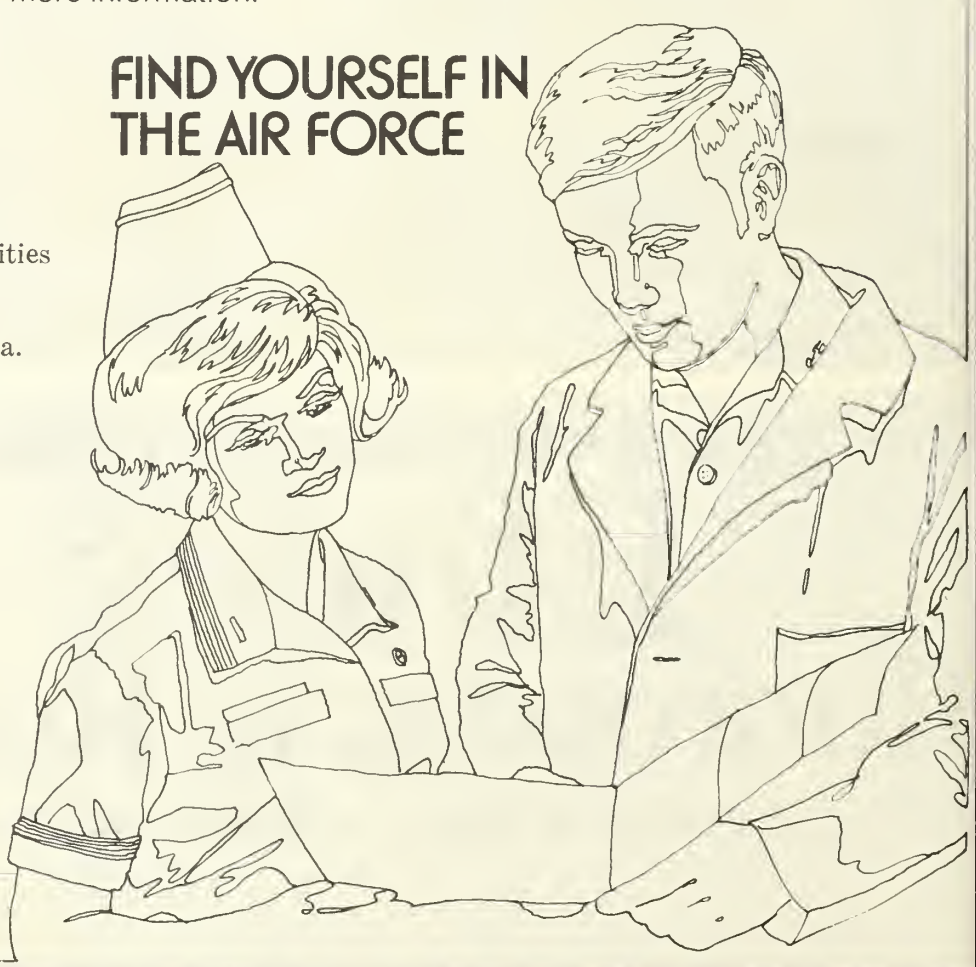
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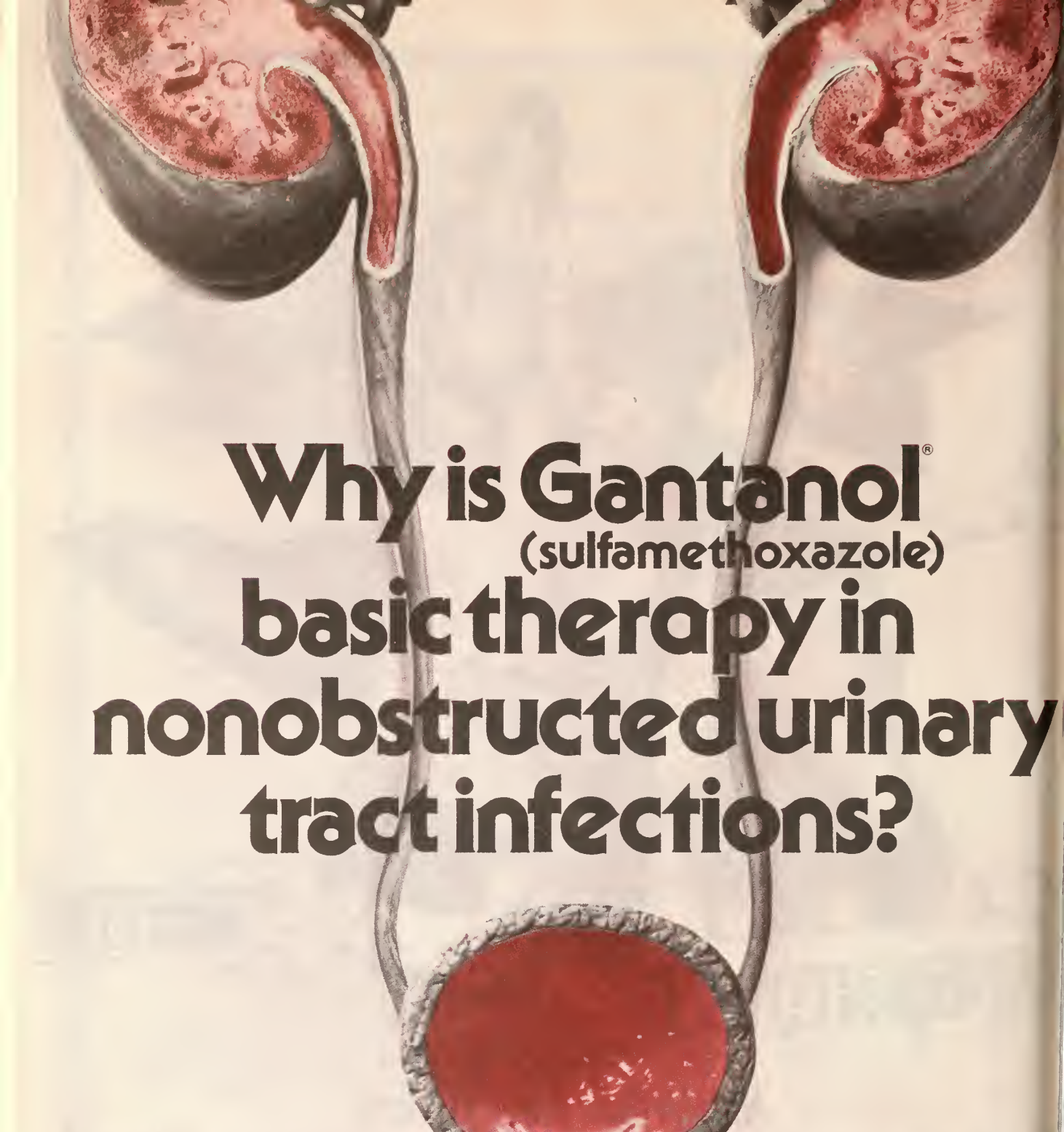


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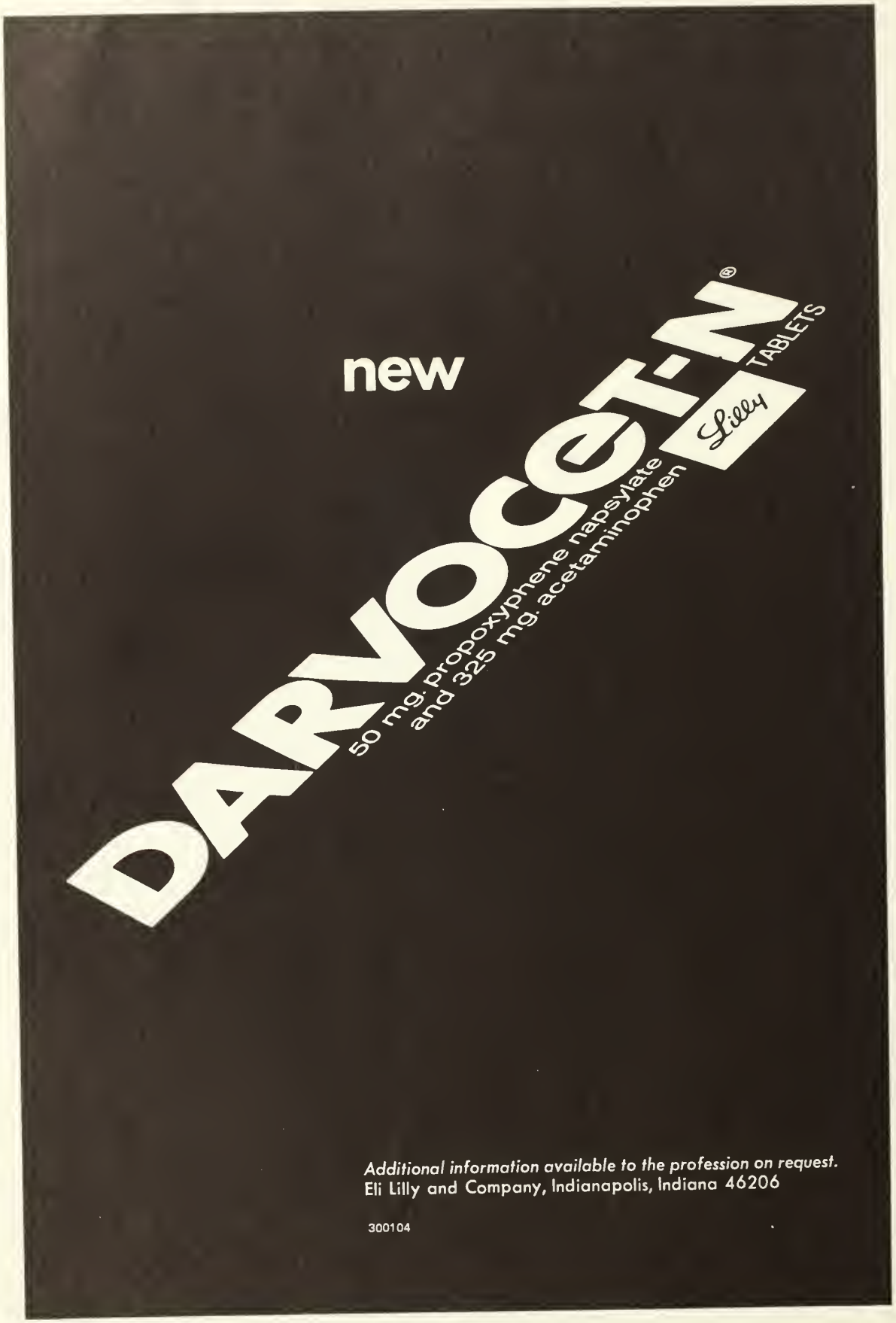
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THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 70 MAY, 1974 NUMBER 5

WHERE ARE THE PHYSICIANS IN SOUTH CAROLINA?

LARRY MICHAEL TREADWELL*

INTRODUCTION

In 1950 the citizens of the United States spent 12 billion dollars for medical care. Over the next two decades the dollar value of the medical care delivered increased over 500 per cent. And by 1971 the medical bill had escalated to 75 billion dollars which was 7 per cent of the Gross National Product.[1] There was, of course, inflationary pressure during these two decades that contributed to some of this increased cost of medical care. But the only way to account for the tremendous surge in spending is the fact that the average American recognized the importance of health care and he was willing to seek it out and spend hard earned dollars for it.

The average American asserts without hesitation that we in the United States surpass the rest of the world with respect to our medical competence and know-how. And it is this belief in the superiority of our medical care that prompts our citizens to spend money for it. But not withstanding this faith in our superiority, the United States ranks twenty-fourth among the nations of the world in life expectancy for the males and ninth for females.[1] We have the medical knowledge and we have the medical ability, but are we able to deliver medical care effectively so that we can change the statistics on life expectancy?

We are constantly reminded that America faces "a massive crisis in the area of health care.[2] For the last half of the decade of the 1970s, however, it seems that one of the most important parameters of this "crisis" is a geographic factor, i.e., the spatial distribution of health service personnel. Simply put, this geographic factor relates to the availability of health care services for the average American. And it should be clear that availability is a key to developing adequate utilization of the health care services.

The prime component in the delivery of adequate health care is, of course, the physician. With this in mind, the spatial variations in physician availability in South Carolina was studied. There were three objectives in making the study: (1) to examine inter-state variations in physician supply by contrasting South Carolina

*BA Geography, University of Georgia.
MA Geography, University of South Carolina.
Research Analyst, South Carolina State Development Board.

with states in the Northeast and Southeast; (2) to examine South Carolina for intra-state variations in the physician supply; and (3) to identify areas in South Carolina in which the supply of physicians is inadequate.

DRAWING THE CONTRASTS: SOUTH CAROLINA ET AL

In the northeastern portion of the United States persons in health service occupations represent a larger proportion of the total population than they do in the Southeast.[3] Table I documents the differences which exist between states in the Northeast and the Southeast with respect to physician availability. The eleven states selected to represent the Northeast had a composite ratio of 1.98 physicians per 1,000 population. In contrast, the eleven states designated as the Southeast had a combined ratio of only 1.17 physicians for every 1,000 inhabitants.[4]

An inspection of Table I shows that four southeastern states — Alabama, Arkansas, Mississippi, and South Carolina — had ratios which were below one physician per 1,000 inhabitants. And none of the southeastern states had a physician- population ratio which was as high as the national ratio of 1.74 physicians per 1,000 population. These statistics show that South Carolina was far below the national physician-population ratio. And, in fact, South Carolina was below the average for the entire southeastern region. Nationally, in addition to Alabama and Mississippi, only Alaska at 0.75 physicians per 1,000 inhabitants and South Dakota at 0.85 physicians per 1,000 were ranked lower than South Carolina in terms of physician availability.[4]

WITHIN THE STATE OF SOUTH CAROLINA

South Carolina is suffering from an acute shortage of physicians. This shortage is even more pronounced when you remove from the statistics those physicians employed in South Carolina by the federal government. Table II identifies only those physicians in private practice in South Carolina.

The ratio between physicians in private practice and South Carolina's population is 0.83[5] By contrast, for the United States as a whole there are approximately 1.58 private physicians per 1,000 inhabitants.[6] Thus, South Carolina had a trifle more than one-half the national average.

TABLE I

PHYSICIANS PER 1,000 POPULATION, 1971
(United States = 1.74)

NORTHEAST	RATIO	SOUTHEAST	RATIO
Connecticut	1.98	Alabama	0.90
Delaware	1.45	Arkansas	0.96
Maine	1.37	Florida	1.68
Maryland	1.89	Georgia	1.12
Massachusetts	2.17	Kentucky	1.04
New Hampshire	1.45	Louisiana	1.22
New Jersey	1.58	Mississippi	0.82
New York	2.43	North Carolina	1.11
Pennsylvania	1.67	South Carolina	0.94
Rhode Island	1.70	Tennessee	1.23
Vermont	1.96	Virginia	1.25

Source: United States Bureau of the Census, **Statistical Abstract of the United States, 1973** (Washington, D. C.: U. S. Government Printing Office, 1973), p. 72.

TABLE II

NUMBER OF PRIVATE PHYSICIANS
PER 1,000 POPULATION
FOR COUNTIES IN SOUTH CAROLINA, 1971

COUNTY	RATIO	COUNTY	RATIO
Abbeville	0.3316	Greenwood	1.2881
Aiken	0.4944	Hampton	0.5038
Allendale	0.3095	Horry	0.7001
Anderson	0.8627	Jasper	0.1683
Bamberg	0.6270	Kershaw	0.7487
Barnwell	0.4658	Lancaster	0.4385
Beaufort	0.5084	Laurens	0.4023
Berkeley	0.1601	Lee	0.3275
Calhoun	0.2783	Lexington	0.3146
Charleston	1.8009	McCormick	0.2514
Cherokee	0.3533	Marion	0.8259
Chester	0.4361	Marlboro	0.6261
Chesterfield	0.3861	Newberry	0.6149
Clarendon	0.3125	Oconee	0.6138
Colleton	0.4344	Orangeburg	0.6878
Darlington	0.4491	Pickens	0.5258
Dillon	0.3468	Richland	1.4538
Dorchester	0.3408	Saluda	0.2753
Edgefield	0.3186	Spartanburg	0.9325
Fairfield	0.3000	Sumter	0.5414
Florence	0.9483	Union	0.3079
Georgetown	0.6567	Williamsburg	0.3504
Greenville	1.1141	York	0.6102

Sources: Compiled by the author from the **Census of the Population of the United States, 1970** and the South Carolina Board of Medical Examiners, **Directory, 1971-72.**

The ratio counting all physicians in South Carolina is 0.94. This means that 0.11 physicians per 1,000 inhabitants were employed by the federal government in some capacity within the state in 1971. Recalling the national figure of 1.74 physicians per 1,000 population, this figure includes 0.16 federal physicians per 1,000 inhabitants. South Carolina also has fewer federally employed physicians within the state than the national average.

The actual utilization of the services of a physician on a consistent continuing basis depends to a considerable degree on the availability of the physician to the potential patient. Thus, the physical location of a physician's office is crucial.

Table II documents the ratio between private physicians and the population for each of the forty-six counties in South Carolina. These data reflect the situation within the state on a much smaller scale and allow differentiations to be made among the counties. Ratios ranged from a low of 0.1601 for Berkeley County to a high of 1.8009 for Charleston County. Seven counties were above the state's average ratio of 0.83. The seven "super" counties within the state were: Anderson, Charleston, Florence, Greenville, Greenwood, Richland, and Spartanburg Counties. The remaining thirty-nine counties fall below the state's average. The fact that thirty-nine counties are below the

state's average and only seven are above indicates a very lopsided distribution of physicians within the state.

WHAT IS ADEQUATE?

The intent of this paper is not to enter the debate concerning how many physicians per 1,000 inhabitants are necessary for adequate delivery of medical care, but to analyze the situation in the state of South Carolina on a comparative basis. Thus the national ratio of 1.58 physicians per 1,000 inhabitants was assumed to represent a theoretical level of "adequate" physician availability in the year 1971.

Based on this national norm of 1.58, only Charleston County was found to be "adequate." Thus, of the seven "super" South Carolina counties only one is "adequate" when we draw the contrast with the United States as a whole! It should be noted, in addition, that South Carolina's only medical school is in Charleston. This fact goes a long way toward explaining this county's relatively high supply of physicians.

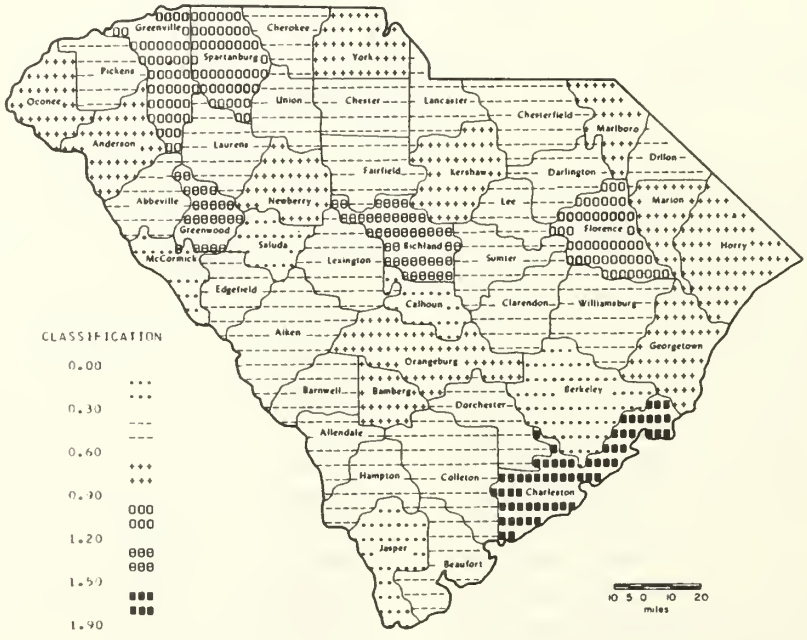
South Carolina's capital, Columbia, is located in Richland County. Columbia also happens to be the largest city in the state. Richland County had 1.4538 physicians per 1,000 population. With all the advantages of being the "Capital County," Richland failed to exceed the national norm of 1.58.

The map marked Figure I helps to visualize the spatial distribution of physicians in South Carolina. Areas in which there are pronounced shortages of physicians can be readily seen.

A cursory perusal of the map indicates that there are concentrations of physicians in the urbanized counties of the state. Even these counties, however, tended to be relatively low in physician availability. In fact, forty-five of South Carolina's counties were below the national norm with respect to physician supply. Eighteen counties — representing 39 per cent of all South Carolina's counties — had ratios which were less than one-fourth the national average. Over 80 per cent or 38

FIGURE I

NUMBER OF PRIVATE PHYSICIANS PER 1,000 POPULATION, 1971



Sources: Compiled by the author from the Census of the Population of the United States, 1970 and the South Carolina Board of Medical Examiners, Directory, 1971-72.

counties had ratios which were less than one-half the national norm.

MALDISTRIBUTION: A SEVERE PROBLEM

South Carolina is suffering from an acute shortage of physicians. The state as a whole had only 0.83 private physicians for every 1,000 inhabitants in 1971. This figure was slightly over one-half the national norm.

The maldistribution of physicians within the state was also quite pronounced. Only one county — housing the state's only medical school — exceeded the national norm in terms of physician availability. The vast majority of South Carolina's counties had woefully inadequate physician coverage.

Insufficient numbers of physicians compounded by a maldistribution of those available creates a situation in which millions of Americans are actually locked out of the health care system. South Carolina is a state in which both factors — insufficient numbers and maldistribution — are at work. The need for more physicians in South Carolina is obvious. The spatial distribution of any physicians added to the state's supply is a crucial consideration in upgrading the delivery of health care services in the state.

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TREATMENT OF FACIAL PAIN BY PERCUTANEOUS INJECTION OF THE GASSERIAN GANGLION

RODNEY E. FROTHINGHAM, M.D.***
J. W. DAVID ATCHISON, M.D.**
CARL C. BAILEY, M.D.**

Vol 75

This report concerns the technique and results of percutaneous injection of the Gasserian ganglion with 5 per cent phenol in glycerine solution in 12 patients with intractable, severe, facial pain. All of these patients had been treated previously by other methods available, i. e., Dilantin, Tegretol, alcohol injections of peripheral branches, peripheral neurectomies, and in one case, operative retrogasserian rhizotomy. All of the patients treated had failed to respond, had become refractive, or were unable to tolerate the accompanying side effects of medical treatment. Only then were these patients considered for percutaneous injection of the Gasserian ganglion.

No attempt will be made to review the various techniques available for the treatment of facial pain as the literature is filled with such reports. Neither will any attempt be made to differentiate between the various classifications of facial pain, that is, idiopathic trigeminal neuralgia, atypical trigeminal neuralgia, atypical face pain, etc.

All patients treated did describe typical, severe, lancinating pain although some had, in addition, a second, continuous, deep, aching pain of varying intensity which persisted between these attacks.

MATERIALS AND METHODS

With the patient in the supine position on a thin mat on the X-ray table, the head is extended over the upper edge of the mat. Standard fluoroscopy with image intensification is used for localization of the foramen ovale. The head is then extended and rotated away from the involved side of the face. This maneuver is continued until the foramen ovale appears between the lateral wall of the maxilla and the ramus of the mandible (Fig. 1). By gently rotating and flexing/extending the head, the shadow of the foramen ovale should appear above the petrous ridge (Fig. 2).

The skin area is prepared with antiseptic solution and a small skin wheal of

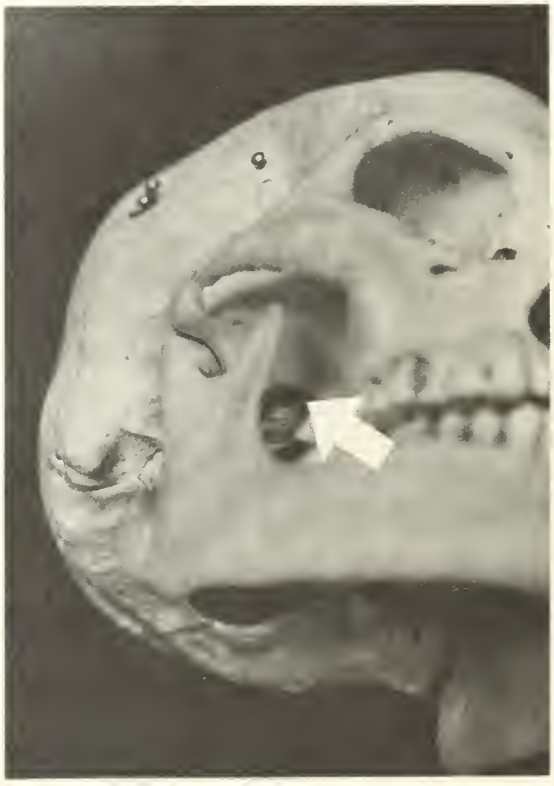


Figure 1

***Neurosurgical Associates, P. A., 123 Arlington Avenue, Greenville, South Carolina 29601
**Greenville Radiology Professional Association, 24 Vardry Street, Greenville, South Carolina 29601

1 per cent xylocaine is raised just over the angle made by the anterior surfaces of the ramus and body of the mandible.

A three or four-inch, 20 gauge rhizotomy needle* is inserted under fluoroscopic control and passed through the foramen ovale. A small amount of local anesthetic is usually necessary as the needle approaches the mandibular division at the foramen ovale. The needle is then advanced through the foramen (Fig. 3). At this point, the head is rotated into a full lateral position and the needle is advanced until the tip of the needle lies 2 to 5 mm anterior to the shadow of the clivus (Fig.4).

The patient is then brought up into the sitting position, the head flexed and rotated until the needle is perpendicular to the floor of the room.

Freshly prepared, sterile, 5 per cent phenol in glycerine is then injected in 0.1 cc increments until pain is relieved, or hypesthesia is obtained, or a total of 0.5 cc is reached. The needle is then withdrawn and the patient is kept in a three-quarters prone position for several hours. The purpose of this maneuver is to help insure that the hyperbaric solution remains in contact with the ganglion rootlets.



Fig. 2

*Rhizotomy needles available from Becton-Dickerson.



Fig. 3



Fig. 4

RESULTS

A total of 12 patients have been treated, ranging in age from 26 to 79 years, with a follow-up period ranging from 1 month to 6 months. Of these 12 patients, 9 (75%) have had an excellent result (total relief of pain without significant sensory and/or motor loss), 2 had a good result (total relief of pain with some degree of disturbing sensory and/or motor impairment). There is one patient listed as a poor result, as she had inadequate pain relief following the injection. It should be pointed out, however, that whereas this patient had been unresponsive to large doses of Tegretol prior to injection, she was pain free on a very small dose of Tegretol afterward.

There was a reduction in the corneal reflex in almost half (42%) of the patients in this series, but none had total

loss. None of these patients has developed keratitis, corneal ulceration, or anesthesia dolorosa. Three patients experienced some degree of weakness of the muscles of mastication but in none was there complete paralysis.

DISCUSSION

This procedure has been quite safe, relatively simple, and very effective in the treatment of facial pain. We feel it is noteworthy that all patients with motor and/or sensory impairment have experienced some return of normal function despite the fact that there has not been, to date, any return of pain.

SUMMARY

This has been a report of 12 patients with intractable facial pain treated by the percutaneous injection of the Gasserian ganglion using 5 per cent phenol in glycerine solution. Needle placement is directed under fluoroscopic control. While this report encompasses a small series and a short follow-up period, the authors feel that this technique has a very definite place in the treatment of facial pain.

ACKNOWLEDGMENTS

The authors express their appreciation to Mr. C. J. Moskos, Pharmacy of Greenville General Hospital, for the preparation and testing of solutions used in our injections.

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Greenville, South Carolina 29601

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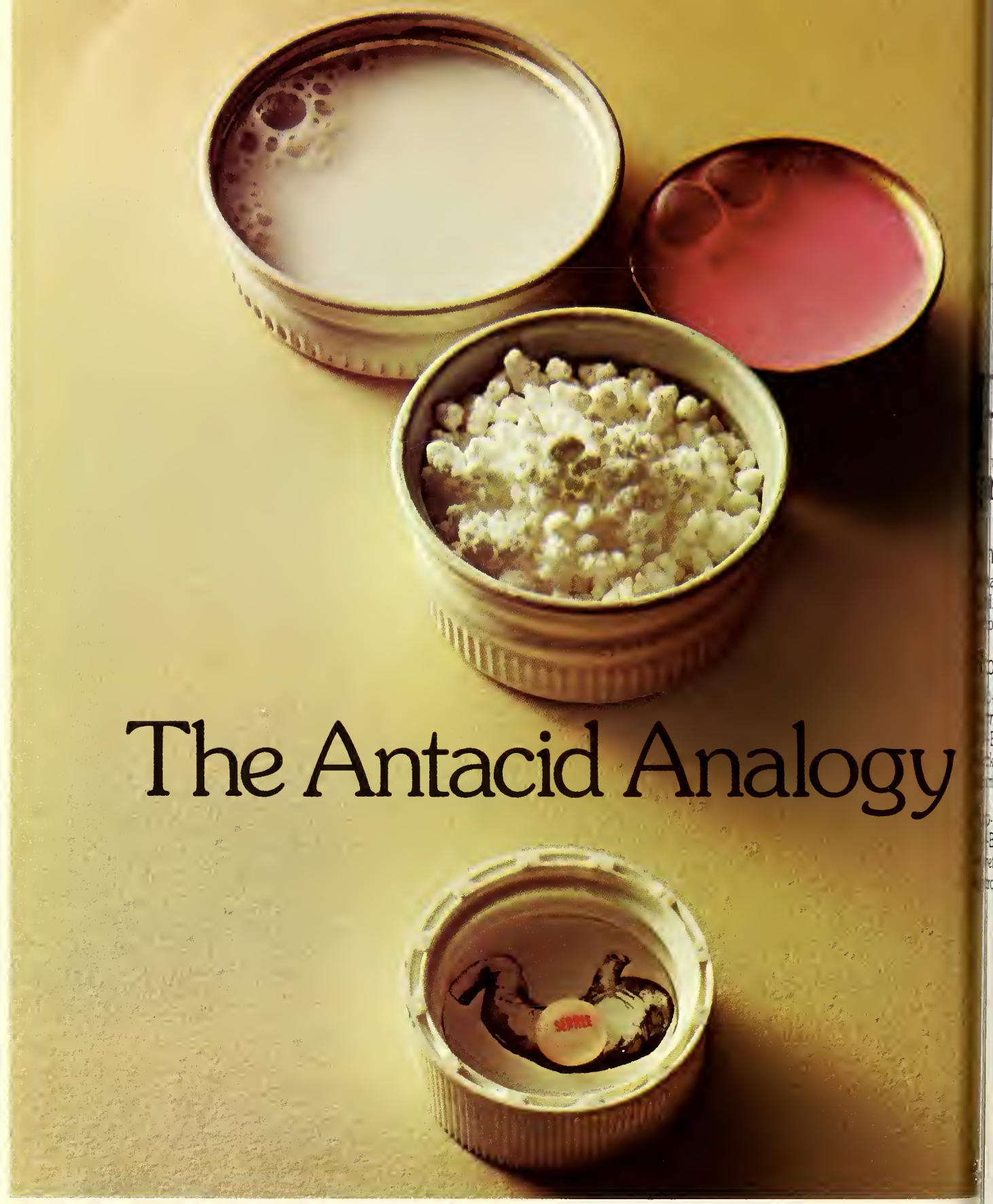
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*Innes, I. R., and Nickerson, M., in Goodman, L. S., and Gilman, A. (editors): The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970, p. 537.

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cu as well as mydriasis and blurred vision. In addition the following
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President's Pages



One year ago I was entrusted with the leadership of this great Association, an honor, although undeserved, that I will cherish the rest of my life.

The SCMA is forging ahead with tremendous strides.

The impetus has been supplied by many men devoted to the principles of organized medicine and more specifically to the SCMA. This was true when I first became a Councilor 10 years ago and it is certainly true today.

One Objective of our Association during the past year was to strengthen our Committees and I am sure all of you agree that this was accomplished by a readiness on the part of Physicians of this state, especially the Chairmen of our key committees. This culminated in our first Mid-Winter Meeting in December. I want to thank the many committees that made this meeting possible. As one person expressed it—There seemed to be an exceptional degree of reconciliation, prudent judgment, and foresight at this meeting.

Would it be saying too much to say that the spirit that prevailed at the Mid-Winter Meeting, if it continues, will carry this Association through many difficulties and bring it to be the outstanding Association that we all hope for.

In the face of biased attacks by the Government, News Media, and Consumer, it behooves us to present a united front to our critics. It is discouraging, of course, to find irresponsible elements of the communications media together with certain politicians, labor leaders, and the like simultaneously doing their misdirected best to undermine public confidence and to instill fear by distorted threats of many unnecessary surgical operations, incompetent physicians, dangerous hospitals, etc. It is plainly contrary to the public interest to permit the development of a new kind of health professional without supervision and control. On one hand it seems possible to educate and train men and women to fill immensely useful roles in supplementation of and extension of the work of physicians. On the other hand there is the possibility that new kinds of pseudo professionals, ill trained and uncontrolled might come into being.

Somehow, the idea that there is a "Crisis in our present health system" has been accepted by many people. The facts are that physician supply is increasing about 3% per year while general population increase is less than 1%. In our own state at this present time there are sufficient young men studying medicine and in the Residency Program to make a big change in the physician supply in this state in a few years. I believe we will be in good shape in 3 to 4 years if we can persuade some of the socialistic planners not to go too fast in setting up socialistic branches of medicine out in the rural areas and in the training of too many paramedicals to take the place of physicians.

Concerning organized medicine in this state — I believe that more interest has been taken each year in spite of the fact that many doctors do not take an active part in SCMA. Too often the question is, "What does the SCMA do for me?" or more pointedly "Why should I pay dues to the SCMA?" This is a very narrow view of the benefits of membership in SCMA. The question should be "How may I be responsive to the many demands which are being made upon the profession of which I am a part?" "How can I do my share?"

We have stated ourselves, and have been warned by others, that our profession is at the cross roads, yet it has not stalled. Progress is very rapid and this is a perilous part of our problem. Our vehicle must not only have motive power and a steering mechanism but it must also be endowed with brakes. At times it may be wise to use these brakes.

Our profession does have a multitude of broad societal obligations and responsibilities which increase in scope and number as our capacities increase to do good and useful things for people.

The individual physician can do little about the obligations of the practice of medicine by himself, it is only through the collective actions of organized physicians that the job can be done. There can be little argument that the SCMA is the pre-eminent organization of physicians in this state. In some respects it may be less towering and less visible today because as a part of the great growth in medicine and the specialities there has been the emerging of other speciality organizations, such as surgery, family practice, etc.

The individual physician uniformly finds it hard to make his voice heard and his convictions felt unless he combines his efforts with those of his colleagues through his County and his State Medical Society. Almost every practicing physician has his concern for insurance companies, volunteer fee payment plans, prepaid comprehensive group practice arrangements, and government programs. He would be hard pressed to maintain liaison with them, to cooperate with them, to argue with them or to negotiate on his own.

One important way in which the Medical Association can be of service is the area of Legislation — past, present, and proposed, local and state.

It has been my personal observation during the past year that the voice of the practicing medical profession has been heard again. It was a short time ago that the medical profession was unheard but the situation has changed due to better organization in our State Association.

There is probably no single subject on which all physicians agree unless it is that medicine is a worthwhile calling. It is our obligation to the public to do our best to dispel ignorance, to overcome fear and superstition, and to promote the virtues of scientific medical care — preventive, diagnostic, and therapeutic. It is truly fortunate that so many of our physicians in active practice, taking care of people, are attracted to service in our State Medical Association.

The public whether it recognizes it or not profits immensely because of the role played by the County Medical Societies and the State Medical Society because they uphold standards of competence and ethical performance.

There is a growing recognization of the fact that physicians must act in concert and that the convictions of the present generation can become the future association policies if work is done to make them so.

Some physicians may be willing to surrender the controls over the practice of medicine to consumer groups, to labor, or to government.

Some may be willing to concede to hospital domination, to academic medicine, or to the many-splendored association of public health workers. Most of us would not.

I would like to close with this quotation from Dr. Roff, President of the AMA:

"Grant us a profession populated by men and women of competence, integrity, and a will to do their best for their people, and we will give you care for the health of our state without the need for restrictive systems, intricate controls, or massive governmental intervention."

This is what the SCMA is all about.

Harold P. Hope, M.D.
SCMA President

The Journal of the South Carolina Medical Association

50 YEARS AGO

May, 1924

This issue contained a biographical sketch of Dr. D. M. Crosson, the president-elect. The Little Pee Dee Medical Society met with thirteen members present. "As there were no writers present, no papers were read."

Dr. Edward F. Parker of Charleston had read a paper entitled "Prenatal Sight and Hearing as Factors in the Child's Destiny," discussed with some gravity by Drs. J. W. Jervey of Greenville and James A. Hayne of Columbia.

Editorials

What The Lord Has Given

Press Release, U. S. Department of Health, Education, and Welfare, April 8, 1974

What the Lord has given,

"HEW Secretary Caspar W. Weinberger today outlined conditions under which Medicare *will* pay for services not covered by the law either because they were not 'reasonable and necessary' or involved 'custodial care.'

"Under proposed regulations:

"Medicare will pay for the services if neither the person who received the services nor the person who furnished them knew, or could be reasonably expected to know, that the services were not covered.

"If the provider of services, or the physicians or other person in an assignment case, knew or could reasonably be expected to know that the services were not covered, then neither Medicare nor the beneficiary will be liable for payment."

He will also take away.

"IF IN THESE CASES THE BENEFICIARY IS CHARGED FOR THE NON-COVERED SERVICE, MEDICARE WILL REPAY THE BENEFICIARY AND CHARGE THE AMOUNT TO THE PROVIDER OF SERVICES OR THE PHYSICIAN. THE PROVIDER OR PHYSICIAN WILL THEN HAVE THE RIGHT TO CONTEST THE DECISION THROUGH ADMINISTRATIVE APPEALS PROCESS AND THROUGH THE COURTS WHERE APPLICABLE.

"When a provider is found to have made all reasonable efforts to obtain knowledge of Medicare coverage and to apply that knowledge, the proposed regulations permit a presumption that the provider did not have knowledge of non-coverage in a particular case, in the absence of evidence to the contrary. This presumption can be applied only if the provider meets criteria which are set forth in the proposed regulations."

"What the Lord has given, He also takes away. Praise be the Lord!" Job 1:21.

EEK

A Second Medical School

We hope everyone, especially Charlestonians, will note that the title of this editorial is "*A* SECOND MEDICAL SCHOOL" not "*THE* SECOND MEDICAL SCHOOL." That is because as this May issue of JSCMA goes to press, Governor West has just recently made his pitch to the Legislature and the details and possibilities of his plan are not yet sufficiently clear to me to be able to make up my mind whether this is THE opportunity, our ONE BIG CHANCE or not.

On the issue of a second medical school, it seems to me that Treadwell's article[1] on the national and state distribution of physicians, found elsewhere in this copy of JSCMA, is almost of decisive importance. We do have one bone to pick with his reasoning. He states that the United States ranks twenty-fourth among nations of the world in life expectancy for males and ninth for females, and he equates these rates as a reliable measure of medical care quality, inferentially denigrating medical care in the United States. There are many factors besides quality of medical care that influence life expectancy. His position would be more persuasive if he would determine life expectancy in geographic areas comparable in characteristics except physician density and show that greater physician concentration significantly extended life expectancy. Perhaps we have another paper in the offing???

However, we can not question his statistics which show our South Carolina in the worst position of all the fifty states save Alaska and South Dakota and our sister states Alabama and Mississippi as regards patient-physician ratios. As a matter of fact, ever since becoming a medical editor of sorts, we have been harping on this doleful fact, hoping to influence somebody in authority to do something about it.

But let us now take this fact and use it to formulate a little quiz somewhat in the fashion that is now in vogue for Board examinations. Take it and maybe move a step further along toward making a firm decision on the desirability of a second medical school. The SCMA *MUST* take some position on this question, you know.

Question 1. FACT: South Carolina has one of the very lowest physician-patient ratios of all the states in the country.

Choose one of the possible alternatives and then follow instructions.

A) So what!! It is too expensive and too much trouble to do anything about. Anyway, it's good for business, so don't rock the boat.

B) That's deplorable, we must do something, anything, about it.

If you selected alternative A, fold your paper and hand it in. You have completed this exam. Besides, you do not have time for frivolous relaxation like taking exams. You must work all the time. Then you'll die young and further compound the problem for the few physicians you leave behind.

If you selected alternative B, go on to Question 2.

Question 2. FACT: In South Carolina the ratio of Foreign Medical Graduates to American Graduates is far below the national average. If we brought this ratio up to the national average, our physician-patient ratio would approximate the national average.[2]

Choose one of the possible alternatives and then follow instructions.

A) That makes it easy. It would be much less expensive and less trouble to undertake a massive recruiting effort to get these Foreign Medical Graduates to locate in South Carolina. They have all finished medical school and many have been fully trained, so we wouldn't have to worry

about all of that.

B) Let's continue to welcome these excellent physicians into our midst, but this doesn't seem to be the best way to answer all the medical needs of the people of South Carolina. These Foreign Medical Graduates p r o b a b l y would not settle in the rural areas of our state where the need is greatest, anyway. It will take our own people to go and like it there.

If you have selected alternative A, fold your paper and hand it in. And on your way out, pick up a foreign language dictionary.

If you selected alternative B, go on to Question 3. You have some hard thinking to do, so take a deep breath and go on.

Question 3. FACT: You have committed yourself to some action. What shall it be?

Choose one of the possible alternatives and then follow instructions.

A) Accept the present opportunity in Columbia as the best that is likely to come along any time soon and work like Hell to help bring it off!!

B) Develop some other imaginative, innovative, *feasible* plan to increase the medical manpower supply in South Carolina and work like Hell to help bring it off!!

If you selected alternative A or alternative B, GREAT. But get out and get going and do it. You are the kind of people we need.

1. Treadwell, L. M.: Where are the physicians in South Carolina? J S Carolina Med Ass 70:5, May 1974.

2. Jervey, H. E., Member, Board of Trustees, ECFMG: Personal communication, April 1974.

EEK

WHY JOIN THE SCMA?

Membership in the South Carolina Medical Association affords the individual physician a variety of services and advantages. A list of these services, when carefully studied, should prove to the physician that Association membership is well worth the investment of time and money.

1. *Group Insurance Programs*—SCMA members have available a variety of group insurance programs, sponsored by the SCMA, which offer the physician liberal benefits at minimum rates. The programs include:
   - Group Life
   - Professional Liability (4th lowest rates in U.S.)
   - Office Overhead
   - Blue Cross-Blue Shield and Major Medical
   - Accidental Death and Dismemberment
   - Disability
2. *The Journal* — each SCMA member receives a copy of The Journal each month. The scientific articles, editorials, President's messages and socio-economic news articles are designed to help keep the physician up-to-date in these fields. It also offers the physician who writes articles an outlet for possible publication.
3. *Postgraduate Education*—the SCMA Committee on Medical Education has been designated as the certifying agency for all postgraduate courses conducted in South Carolina. Physicians attending courses certified by the SCMA Committee receive credit toward the AMA's Physician Recognition Award.
4. *Annual Convention* — the Annual Convention allows each member and his wife an opportunity to attend scientific lectures by national figures, to participate in policy debates in the House of Delegates Reference Committee hearings and to visit socially with friends and colleagues.
5. *Group Rate for Foreign Tours*—The SCMA Charter Tours have proven to be highly popular with members and their families. Tours are now available annually and may be increased if the membership wishes.
6. *Permanent Home Building* — Each member becomes an equal owner in the new one million dollar permanent home for the Association.
7. *Full Time Representation at the State Legislature* — For the first time in history the SCMA is able to provide full time representation for the medical profession at the State Legislature. Representation is carried out by a full time legislative representative and by the Doctor of the Day Program.

   Results of the 1974 legislative program to date are:
   a. Abortion Reform Law—H-2481—contains most elements of SCMA's abortion reform program. This Bill stands a very good chance of passage.
   b. Commitment of Patients to Mental Institutions—S-539—as introduced would require large amounts of time for the committing physician at a series of commitment hearings. Senate probably will accept SCMA's recommendation that hearings be eliminated.
   c. Acupuncture—H-2706—contains most of SCMA's recommendations desginating the practice of acupuncture as the practice of

medicine. This will prohibit unlicensed practitioners from performing acupuncture.

d. Health Insurance Coverage for Newborn — H-2464 — bill introduced at suggestion of SCMA would require health insurance companies in South Carolina to provide coverage for newborns.

8. *Representation in Congress on Fedcral Health Legislation* — SCMA's legislative activities on behalf of physicians extends to the halls of Congress. A recent example is the current drive by organized medicine to develop Congressional support for repeal of the PSRO law. As a result of SCMA contacts, six of our eight Congressional representatives have stated they will support repeal.

   Another example is the move to broaden the Jenkins-Keough Professional Retirement Law. This law allows M. D.s to set aside, tax free, up to $2500 annually for a retirement plan. As a result of SCMA contact all eight South Carolina representatives promised to support expanding the limit to $7500.

9. *Representation at AMA* — SCMA members' opinions are projected into AMA policy decisions by a hard working group of SCMA delegates and alternate delegates. At the 1973 AMA Clinical Meeting the South Carolina delegation was instrumental in convincing AMA House of Delegates to vote to support repeal of the PSRO law.

10. *Industrial Practice Committee* — South Carolina Industrial Accident Commission accepts SCMA committee opinions on criteria for payment to physicians in industrial accident cases.

11. *Vocational Rehabilitation Committee* — South Carolina Vocational Rehabilitation Commission accepts SCMA Committee's opinions on payment for physicians services to vocational rehabilitation patients.

12. *Commercial Health Insurance*—Commercial health insurance companies selling insurance in South Carolina accept the decisions of the SCMA Peer Review Committee on disputed claims for physician's services.

13. *Medicare and Medicaid* — the SCMA has recently established a committee on Medicare and Medicaid to help physicians resolve problems encountered in these programs.

14. *Board of Medical Examiners* — the SCMA nominates physicians to this Board thus insuring that licensing and disciplinary actions are in keeping with medical concepts.

15. *Physician Placement Service* — Physicians in South Carolina wishing to relocate in the state may receive current listings of areas in need of physicians and position openings.

    Physicians seeking additional physician help for their area may receive a list of out-of-state physicians interested in relocating in South Carolina.



Spasm reactor?

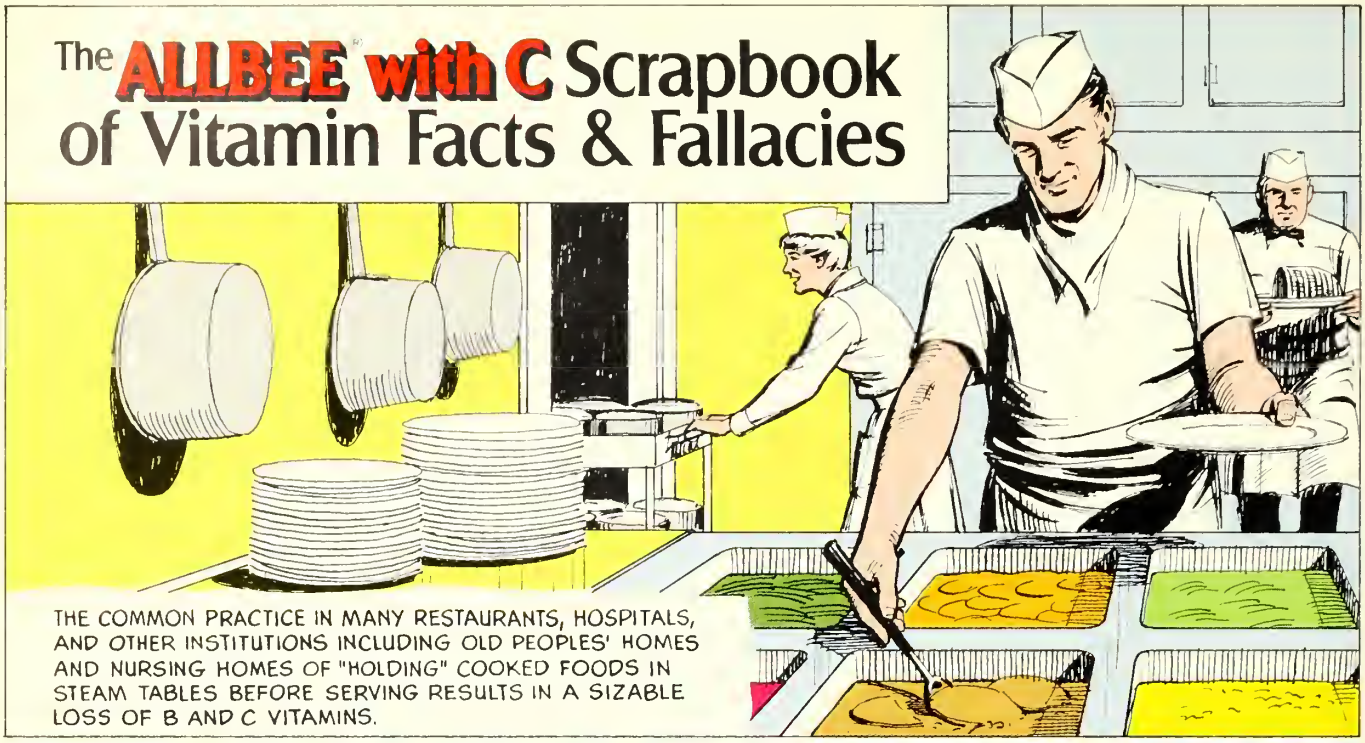
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atropine sulfate	0.0194 mg.	0.0194 mg.	0.0582 mg.
hyoscine hydrobromide	0.0065 mg.	0.0065 mg.	0.0195 mg.
phenobarbital	(¼ gr.) 16.2 mg.	(½ gr.) 32.4 mg.	(¾ gr.) 48.6 mg.
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Brief summary. Adverse Reactions: Blurring of vision, dry mouth, difficult urination, and flushing or dryness of the skin may occur on higher dosage levels, rarely on usual dosage. Contraindications: Glaucoma; renal or hepatic disease; obstructive uropathy (for example, bladder neck obstruction due to prostatic hypertrophy); or hypersensitivity to any of the ingredients.

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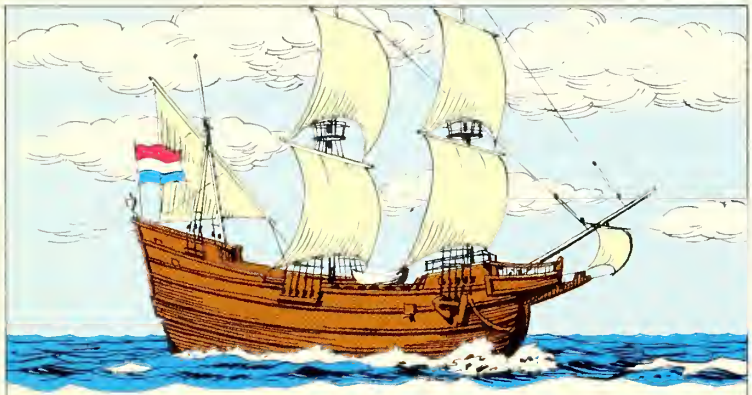
THE COMMON PRACTICE IN MANY RESTAURANTS, HOSPITALS, AND OTHER INSTITUTIONS INCLUDING OLD PEOPLES' HOMES AND NURSING HOMES OF "HOLDING" COOKED FOODS IN STEAM TABLES BEFORE SERVING RESULTS IN A SIZABLE LOSS OF B AND C VITAMINS.



DURING THE CIVIL WAR 30,714 CASES OF SCURVY WERE REPORTED, AND 383 DEATHS WERE ATTRIBUTED DIRECTLY TO THE DISEASE.



THE AMOUNT OF SUNLIGHT AVAILABLE DURING RIPENING DETERMINES TO A LARGE EXTENT THE FINAL ASCORBIC ACID CONTENT OF TOMATOES. HENCE, A COOL, WET SUMMER PRODUCES WATERY, LESS TASTY FRUIT THAT'S LOWER IN VITAMIN C.



RONSSENS, A DUTCH PHYSICIAN, WROTE IN 1564 THAT "DUTCH SAILORS WHO, RETURNING FROM SPAIN, WERE ATTRACTED BY THE NOVEL RICHNESS OF THE FRUIT (ORANGES) AND BY THEIR GREED AND GLUTTONY, UNEXPECTEDLY DROVE OUT THE DISEASE (SCURVY), AND HAD THIS HAPPY EXPERIENCE NOT ON A SINGLE OCCASION ONLY, BUT REPEATEDLY."

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WOMAN'S AUXILIARY
TO THE
SOUTH CAROLINA MEDICAL ASSOCIATION

President's Annual Report

Our 1,088 South Carolina Medical Association Auxiliary members have been very busy this year continuing to Health Educate South Carolineans and to serve their Communities in numerous other ways. As I visited the thirteen organized county auxiliaries, there was much evidence of warm fellowship and true dedication to our role of improving the image of the medical profession.

I'd like to mention some of the outstanding accomplishments of the county groups. One county auxiliary joined their efforts with those of the county and state Health and Education departments to sponsor a very successful Health Education workshop for more than one hundred teachers and youth leaders in the county. Another group sponsored, for the second year, a well attended lecture series on nutrition education. Several counties gave scholarships to nurses. One group serves as "advisor-sponsors" for nursing school students at their local hospital. Outstanding work in International Health was done by many auxiliaries while sending thousands of pounds of pharmaceuticals to protestant missions in Niger and Haiti. Hundreds of medical books and magazines were sent to the International Book Project. Around 4,000 children were screened for visual and auditory defects by auxiliary volunteers in one county.

Thousands of hours of volunteer work was done with Senior Citizens, (some counties adopted the "Project Compassion" idea of the Arkansas Auxiliary); Cancer education; Bloodmobile; and in making arrangements, attending, and



Mrs. Leonard W. Douglas

serving in various capacities to promote our South Carolina Forum on Child Protection. Several county auxiliaries have reported an increase in their contribution to AMA-ERF. One of our smaller county groups, 18 members, last year gave $10.00. This year its contribution was $180.00, $10.00 per member. Our total giving to this date is $11,378.00.

Early in the fall a copy of the South Carolina Child Abuse Law, revised in 1972, was sent by state Health Services and Legislative Chairmen to the county chairmen to be distributed to all Family Practitioners and Pediatricians in their areas.

The SCMA Auxiliary Membership Committee made a recommendation, that was accepted by the Executive Board, to divide the state into four regions with designated counties to facilitate the work of regional vice-presidents in organizing new auxiliaries.

A revisions committee revised the SCMA Auxiliary Constitution and By-Laws that was voted on by the Executive Board and will be brought to the House of Delegates for ratification during the Convention in May.

In addition to four issues of the "S. C. Auxiliary News," we now have a new means of communicating with our members. The Auxiliary will have a full page of its news in the *S. C. Medical Association Journal* each month.

Our most important achievement was our one-day seminar on Child Abuse and the three-day workshop that followed. I think this unified effort, along with the many other volunteer services given, proves that South Carolina Medical Auxiliary members have been interested, informed and involved.

Mary Anne D. Douglas
President, Woman's Auxiliary to SCMA

TRIDENT SOUTH CAROLINA CHAPTER NATIONAL MULTIPLE SCLEROSIS SOCIETY

The National Multiple Sclerosis Society has authorized the Trident South Carolina Chapter in Charleston to assume responsibility for all Multiple Sclerosis patients in Florence County.

Since April, 1971, the Trident Chapter has served MS patients in Berkeley, Charleston, and Dorchester counties. In 1972, the Trident Chapter raised over $19,000 in the three-county area to carry on the fight against Multiple Sclerosis. In 1973, the Chapter, serving patients in the additional thirteen counties, raised $21,592.45. In 1974, we have set a goal of $30,000.

The purpose of the MS society is to provide patient services, such as aids to daily living, medical referrals, and social activities; public education through news articles, educational pamphlets, and talks to groups interested in learning more about MS; and fund raising, which supports local needs of patients, as well as the National Research Program to find the causes, cure, and prevention of MS.

Over 500,000 patients in the United States suffer from MS and related neurological diseases. There is a National Advisory Commission on MS to determine the means by which the Federal Government can most effectively assist in solving the problem of MS.

Multiple Sclerosis, the great crippler of young adults, strikes most often in the 20-40 age group, causing untold problems, both personal and financial for families, and economic losses to the country in terms of job hours lost, and talent and intelligence removed from the labor market.

Mr. George Baker, Chairman of the Board of Trustees of the Trident Chapter, urges all MS patients, their relatives or friends in your county, as well as all area residents interested in learning more about MS, to write to the Trident South Carolina Chapter, National Multiple Sclerosis Society, P. O. Box 3725, Charleston, South Carolina 29407.

BULLETIN FROM THE S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

This is the time of year to increase the index of suspicion for Rocky Mountain Spotted Fever, also called tick typhus or American tick-borne spotted fever.

A particularly heavy tick population is anticipated in South Carolina this summmer due to the unusually mild winter which we experienced. The South Carolina Department of Health and Environmental Control (DHEC) has observed a significant increase in the incidence of Rocky Mountain Spotted Fever in the state during the past 11 years. The first cases are usually reported in early May, with the peak number of cases coming in August.

Physicians are asked to be on the alert for febrile illnesses which follow tick bites or exposure in tick-infested areas. When Rocky Mountain Spotted Fever is suspected, serological confirmation is available from the Department of Health and Environmental Control Laboratory at 2600 Bull Street in Columbia. All cases should be reported to the DHEC Division of Epidemiology via the local county health department.

Severe headache, listlessness, myalgia, sudden chill, rapid rise in temperature, and rash are characteristic symptoms of the disease and when a history of exposure to ticks is also present, the diagnosis is suggested. Symptoms may occur from two to twelve days after a person has been bitten by an infected tick. The distinctive rash usually appears on the extremities during the third day of the disease; early rash may resemble measles or other rash illnesses.

When diagnosed early, Rocky Mountain Spotted Fever can be treated successfully by broad-spectrum antibiotics, the drugs of choice being tetracycline or chloramphenicol. Vaccines are available, but due to the questionable efficacy of current vaccines and the low risk of contracting the disease, the vaccine is recommended only for special situations such as laboratory personnel working with *Rickettsia ricksettsii* and persons whose occupations result in repeated exposures to ticks in endemic areas.

Live ticks that are removed from persons or are collected elsewhere may be mailed to the following address to determine if the tick is infected with a ricksettsial organism:

Division of Vector Control
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

It is requested that all live ticks submitted be placed in a medicine vial containing a strip of paper towel moistened with one drop of water. Attached information should include date, locality, host, collector and telephone number of physician or patient, if the tick was attached to a person. The sender can expect a telephone reply if tests are positive.

Thirty-two cases of Rocky Mountain Spotted Fever were reported during 1973, including 3 fatal cases. The fatalities were one 47-year old woman and two young girls, one, six years of age, and the other, seven. Three-fourths of the cases reported occurred in the Piedmont or above the fall line.

The American dog tick, *Dermacentor variabilis*, is the most prevalent tick in South Carolina and a potential carrier of tick-borne typhus. Not all ticks are infected. Even in heavily-infested areas, only about one tick in twenty is infective and therefore, able to transmit Rocky Mountain Spotted Fever.

CONTINUING MEDICAL EDUCATION: SELF STUDY AND SELF ASSESSMENT

The AMA Physicians Certification Award is now being given to those physicians who have completed a minimum of 150 credit hours of continuing medical education during the qualifying period of July 1, 1970 - June 30, 1973.

Although a minimum of 60 hours of CME activity under accredited sponsorship is a basic requirement for a proportion of the 150 credit hours to be earned during a three-year period, it may be overlooked by some that appropriate non-accredited sponsored programs such as those provided at county and state medical society meetings and individual efforts may also be recognized and counted in the credits awarded recognition Category 5A Self Learning Activities include the use of audiotapes, videotapes, films, slides, participation in radio, TV, and telephone programs and individual or journal club reading. Through medical audits, case conferences, self assessment and chart audits, participants may also earn as many as 22 CME hours of credit.

Recently the Advisory Committee on Continuing Medical Education of the AMA has expanded the recognition and crediting of the use of audio-visual materials for Category I credit towards the Physicians Recognition Award.

The following has been abstracted from the brochure published by the AMA Department of Continuing Education, describing the Physicians Recognition Award requirements for 1973.

"Where only audio-visual materials are used by a physician on an individual basis, Category I credit may be claimed on a limited basis if all the following are met:

1. The audio-visual materials are sponsored by an accredited institution (one whose CME program has been accredited by the AMA Council on Medical Education or by a State Medical Association whose program of accreditation has been approved by the AMA).

2. The audio-visual materials comply with the definition of a planned program of CME (one that is planned, coordinated, administered and evaluated in terms of specific educational objectives for a defined group of physicians or an individual physician).

3. The audio-visual materials contain supplements, such as syllabi, study guides, references, or tests.

4. The audio-visual program is evaluated by the sponsoring institution.

5. The sponsoring institution must have a method of assessing physician participation."

There is a 45-credit hour limitation in Category I for the use of audio-visual materials as described above. An additional 22 credit hours may be claimed in Category 5A if they are earned.

Credit may be claimed in Category I, with no credit hour limitation, if:

1. Audio-visual materials are used by groups of physicians or an individual physician as a part of a course that meets the definition of a planned program of CME, and

2. The audio-visual program has an accredited sponsor or co-sponsor.

Credit may also be claimed in Category I, with no credit hour limitation, where:

1. Audio-visual materials are used by physician groups, and this is the only educational method used,

2. The audio-visual program has an accredited sponsor or co-sponsor, and the program complies with the definition of a planned program of CME, and

3. There is an instructor present to supplement the program.

The Illinois Council on Continuing Medical Education has developed and published a booklet "Your Personal Learning Plan" which is designed to assist practicing physicians in planning for their individual needs. Steps for self study to determine and develop a full assessment of need, along with resources available for self use, and a methodology for developing realistic goals and objectives, are outlined and explained in some detail. There are worksheets for planning. An evaluation of the goals achieved is also presented.*

The advancing pace of medical knowledge and publication of new information provide such a flood that selection of materials, except as these relate to specific problems of a patient, provides a bewildering plethora. Some selective choice and utilization of time devoted to self study is more and more mandatory to prevent total chaos as an end result of effort.

There are certain basic principles that serve as guides:

Devote attention to advances in the basic sciences and applied clinical sciences. Current management trends are often ephemeral. Supplement your areas of expertise. Read and study with a goal in mind, either for immediate application or in anticipation of planned future utilization. In the learning process, after explanation, reinforcement of understanding is by observation and this is further reinforced by review and recall by personal application. Relating new knowledge to old by association and recall is also of aid for retention. Thus, goal direction and objectivity are necessary to prevent self study from deteriorating into a casual time-spending effort.

In respect to institutional efforts for CME, these are being more and more dictated by rules relating to measures of the efficiency of medical practice. Unfortunately, time saving and reduction of costs are the chief goals being looked at, and the patient is being lost sight of in many respects, except as an object to be admitted and discharged with alacrity and at the least possible reimbursable cost or subsidation cost. Handling the greatest number and admitting the greatest number at the least possible unit cost is the orientation of all plans now under discussion with emphasis in these areas in the rhetoric of PSRO, Quality Assurance and Peer Review activities.

In a recent open letter, the Association for Hospital Medical Education has recently pointed out that:

"The direct measurement of the effectiveness and cost-effectiveness of medical care is particularly relevant to episodes of hospitalization which represent the most cost intensive phase of medical care and are likely to include clearly identifiable outcomes.

The decision to hospitalize is the result of a physician-patient relationship. When a patient is hospitalized, physician and patient usually have come to an understanding as to the main reason for hospitalization and what in their minds view hospitalization is to accomplish. Unfortunately, this agreement does not have any standing in record room terminology, which requires that physicians furnish a discharge diagnosis in terms of a pathological entity and an admitting diagnosis which is no more than a guess of what the discharge diagnosis will be.

These requirements obscure the reason why the patient is being hospitalized and make it difficult, if not impossible, to base a judgment of physician performance on data derived from record room abstracts."

If instead of a so-called admission diagnosis, physicians stated the reason for admission and the objectives planned for by the hospitalization, then the physician's achievement of the objectives (his effectiveness) and his economy in time and effort in directly applying to the benefit of his patient the services made available from use of the hospital's resources to achieve this and other stated objectives

*Available for $1.00 from Illinois Council on Continuing Medical Education, 360 N. Michigan Avenue, Chicago, Ill. 60601.

(his cost effectiveness or efficiency) could provide a measure of physician performance.

For most hospital admissions, appropriate outcome is eventually achieved. An unusual delay in recovery, or prolongation of hospital stay and unnecessary or inappropriate use of hospital, resources could appropriately and better serve as indices of areas where improvements might be sought rather than arbitrary days or matching of diagnoses by artificially structured rote schemata.

The efficient physician, by achieving a correct diagnosis and promptly relieving symptoms and disability, lessens human suffering and thus can be said to have provided better care. In hospital practice, at least, efficiency is therefore a sensitive quantifiable measure of the prompt and effective care received by patients, not some measure of averages that relate to other biological systems of which no two are truly exactly comparable, either in brief or long periods of time.

"Review of the efficiency with which a group of physicians has achieved their management objectives for various categories of reasons for admission, can then yield standards of efficiency. These standards are based on what physicians do rather than on what someone says they should do, and will therefore have more validity than a consensus. Because the standards describe objectives to be achieved by the group rather than processes to be followed by each physician, achievement of these standards can be encouraged by educational efforts as set by the staffs of hospital services in their own review processes."

Vince Moseley, M.D.
Director, Division of Continuing Education, Medical University of South
Chairman, Continuing Education Committee, SC Medical Association

BOOK REVIEW

DEATH BY CHOICE, by Daniel C. Maguire. Doubleday & Company, New York, 1974. Pp. 240. Price $6.95.

"THERE ARE TIMES WHEN ENDING LIFE IS THE BEST LIFE OFFERS"

In his book, DEATH BY CHOICE, Daniel C. Maguire examines in a clear and readable manner the major issues involved in the "right to death" controversy. He feels that men have overestimated their moral dominion over death in some contexts, such as war or law enforcement, and underestimated it in other contexts, such as hesitating to terminate life when it would seem humane and reasonable to do so. On that basis he demonstrates the hollowness of ethical absolution toward the taking of life, and provides a reasoned and spirited defense of mercy killing.

Maguire cites various legal cases to illustrate the problems of the law and present day morality in dealing with mercy killing. He points out that although the letter of the law or the rules of society cannot be applied to mercy killing, they offer no alternative to dealing with the problem.

Abortion, irreversibly comatose patients, the right of the terminally ill to end their lives themselves, the meaning of heart death and brain death, moral obligations toward seriously defective children, the moral difference between legal and medical conceptions of death all come under Professor Maguire's thoughtful consideration as he strips away sensationalism and probes the serious implications of "death by choice."

Daniel C. Maguire is Professor of Theology at Marquette University in Wisconsin. Formerly at Catholic University in Washington, he has had many articles published in theological journals and more general publications such as *Commonwealth* and *Worldview.*

DR. SAMUEL DEE CAMPBELL

Dr. Samuel Dee Campbell of Greenville, South Carolina, became something of a legend during his lifetime.

He began his practice of medicine in 1902, and delivered 6,700 babies during the first 50 years of his 70 years as an active physician. His patients had numbered into many thousands, and it is said that he never forgot a patient nor a name. When he died on Monday, April 1, he was 93 years old.

- **Oldest Member of Medical Society**

Dr. Campbell was the oldest member of the Greenville County Medical Society. He was a long-time member of the Medical Staff of Greenville General Hospital, which prior to 1935 was known as City Hospital, the parent institution of the Greenville Hospital System. He was a member of the American Medical Association.

The beloved general practitioner had practiced medicine in Piedmont for some 45 years, then patients continued to come to his home at Moonville. In some families, he had delivered two and three generations of babies. Many of them were named "Dee" — a tribute to him. Gentle, friendly and non-assuming, he kept no formal office hours but accepted patients as they came each day.

- **Began Practice in Horse and Buggy Days**

When he first began his practice, he rode horseback, or used a horse with carriage. He recalled not long ago that "money was hard to come by," and he frequently received cakes, vegetables, chickens, eggs, or hams as payment for services. House calls were $1 in daytime, and $1.50 at night. He thought nothing of riding 10 miles to make a call.

Water wells lined the streets of Piedmont, with one well serving about four houses. He reminisced on his 91st birthday that long ago electricity was cut off at midnight and on many occasions, he was left in the darkness while treating a patient.

An avid smoker of cigars, Dr. Campbell would tap the ashes from his cigar and place the stub tenderly on the bannister of the porch of a house he was entering. Upon leaving, he would pick it up again, light it, and be on his way.

The physician was known by several names and endearments. People of the community might call him "Doc," or "Dr. Dee," or Dr. Campbell, and he responded with his smile, good humor and wit.

About 24 years ago, the people of Piedmont thought Dr. Campbell was entering retirement, and they staged a "Dr. Campbell Day" which lasted all of a Sunday afternoon and evening. But he didn't and couldn't stop his practice of medicine. The patients kept coming to his red brick home atop a hillside at Moonville, and he met their medical needs.

- **Wiped Slate Clean of Over $1,000,000**

The good doctor concluded in the late 1950's that people and patients who were listed with debts on his books were unable to pay, so he wiped the slate clean of more than $1 million.

Two years ago, as he observed his 91st birthday and his 70 years of practice, the House of Representatives in Columbia passed a resolution commending Dr. Campbell "for his long and dedicated service to his community and for being an outstanding servant to mankind."

- **Believed State's Senior Practicing Physician**

Dr. Campbell probably was the oldest physician at that time still active in South Carolina — and perhaps it would be hard to find any medical colleague in the nation

whose personal and professional fulfillment of the Hippocratic oath had continued for so long a period.

Born in Moonville down the Augusta Road, he attended Clemson and Furman Universities, the Medical College of South Carolina, and graduated from the Medical College of Georgia, in Augusta, Georgia.

The faithful physician at final rites was placed to rest beside his wife, the late Mrs. Carrie Ashmore Campbell, in Greenville Memorial Gardens — near Moonville, where he was born and reared, and the area where he practiced the arts of medicine for 70 of his 93 years.

Rondomycin®
(methacycline HCl)

CONTRAINDICATIONS: Hypersensitivity to any of the tetracyclines

WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**

Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)

Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.

Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)

All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.

Tetracyclines are present in milk of lactating women taking tetracyclines.

To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.

Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.

PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.

In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.

Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.

In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).

Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.

Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.

ADVERSE REACTIONS: **Gastrointestinal** (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.

Skin: maculopapular and erythematous rashes, exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).

Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).

Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.

Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.

Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.

Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur.

USUAL DOSAGE: **Adults** — 600 mg daily, divided into two or four equally spaced doses. More severe infections: an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, "Rondomycin" (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.

For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of "Rondomycin" (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.

Eaton Agent pneumonia: 900 mg daily for six days.

Children — 3 to 6 mg/lb/day divided into two to four equally spaced doses.

Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.

Concomitant therapy. Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.

In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.

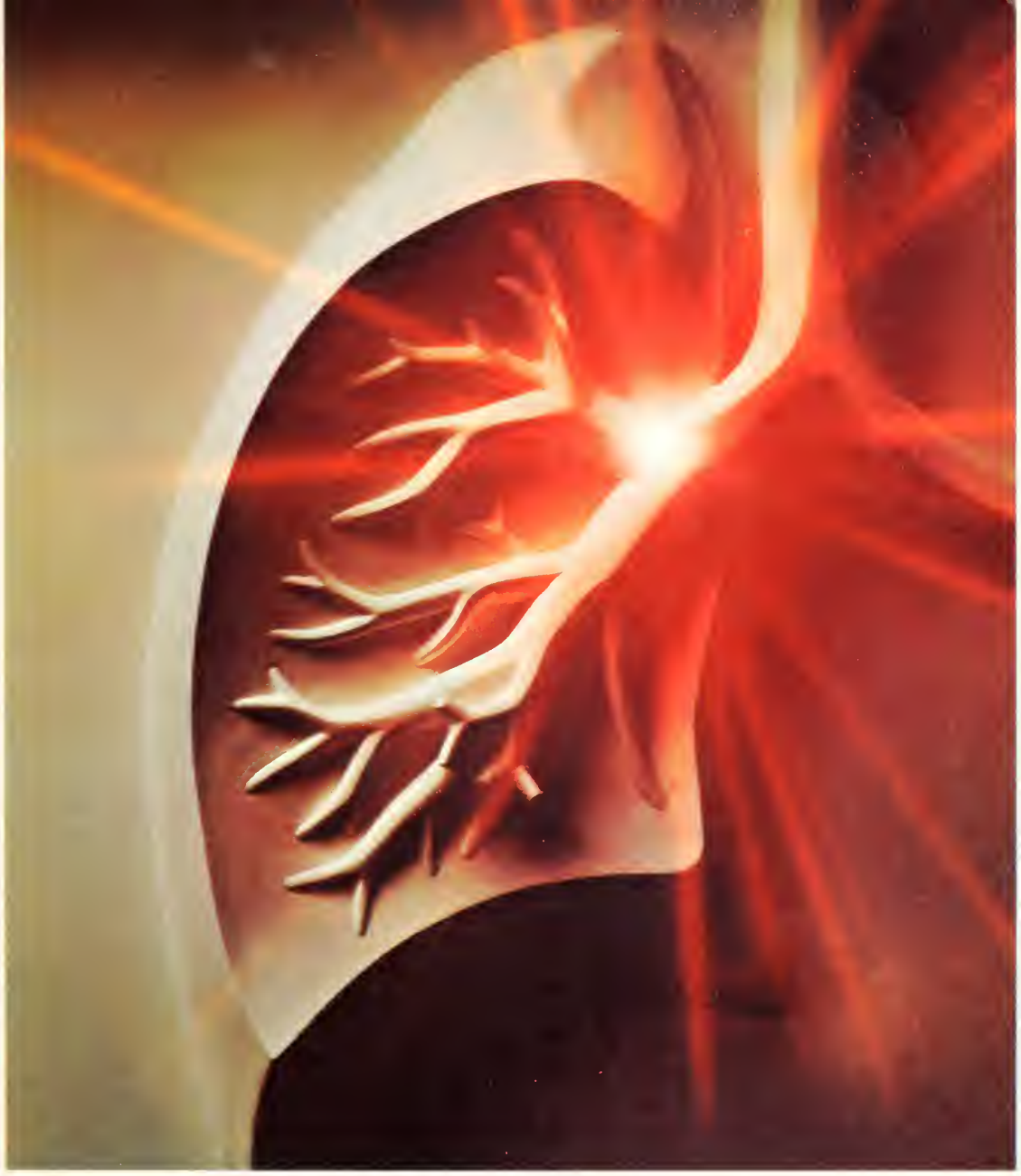
In streptococcal infections, a therapeutic dose should be given for at least 10 days.

SUPPLIED: "Rondomycin" (methacycline HCl) 150 mg and 300 mg capsules; syrup containing 75 mg/5 cc methacycline HCl.

Before prescribing, consult package circular or latest PDR information.

Rev. 6/73

WALLACE PHARMACEUTICALS
CRANBURY, NEW JERSEY 08512



When the focus is on bronchitis due to susceptible strains of *H. influenzae* and pneumococci*

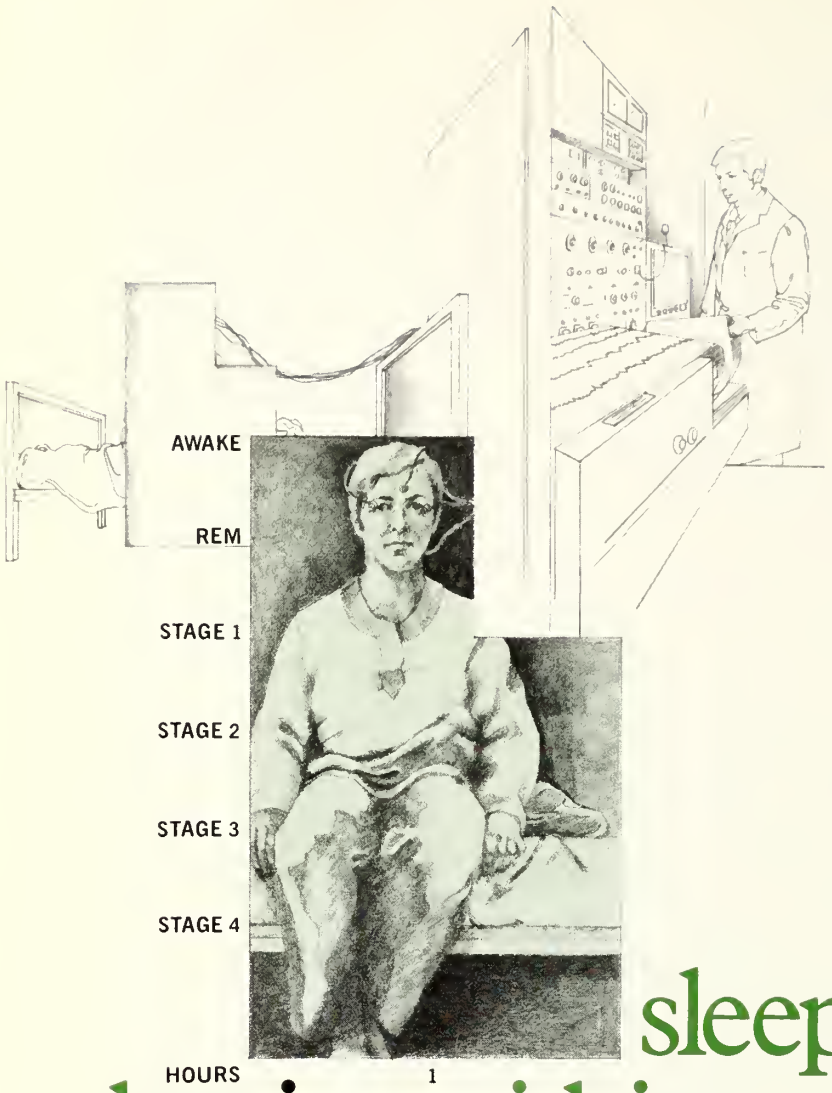
Rondomycin® 300 mg. Capsules

[methacycline HCl]

Delivers from the very first dose:

Studies show that after the first dose serum levels rapidly rise above minimum *in vitro* inhibitory concentrations

*Since many strains are known to be resistant, routine sensitivity testing is recommended.



sleep begins within 17 minutes, on average...

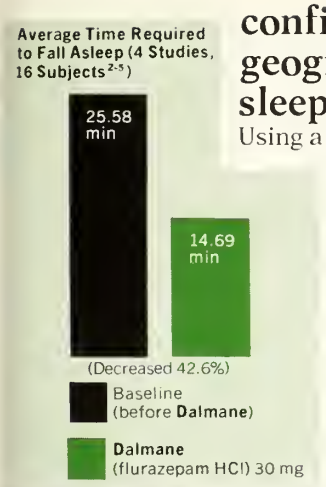
an initial benefit of

Dalmane®

(flurazepam HCl)

proved by a 22-night clinical study of insomnia patients in the sleep research laboratory and at home[1]

Three insomnia patients selected for difficulty falling asleep were administered Dalmane (flurazepam HCl) 30 mg for 14 consecutive nights. Placebo was given for four nights prior to and four nights after Dalmane. Physiologic tracings on Dalmane nights 1-3 showed sleep induction time averaged 13.90 minutes; on Dalmane nights 12-14, 18.80 minutes. Combined average for the 6 monitored drug nights was 16.35 minutes.[1]



confirmed by clinical studies in four geographically separated sleep research laboratories [2-5]

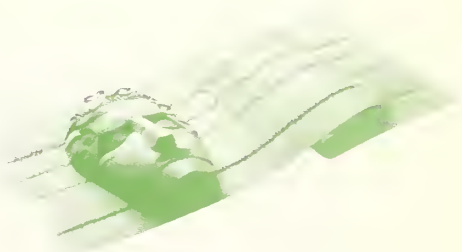
Using a 14-night protocol involving eight insomniac and eight normal subjects, four studies confirmed the sleep-inducing effectiveness of Dalmane (flurazepam HCl) and the reproducibility of this response. On average, one 30-mg capsule induced sleep within 17 minutes. In all these studies, Dalmane induced sleep rapidly, reduced nighttime awakenings, and provided 7 to 8 hours of sleep without repeating dosage.[2-5]

Dalmane (flurazepam HCl) induces and maintains sleep, with relative safety

Dalmane is generally well tolerated; morning "hang-over" has been relatively infrequent. While dizziness, drowsiness, lightheadedness and the like have been noted most often, particularly in the elderly and debilitated, physicians should be aware of the possibility of more serious reactions, as noted below.

Before prescribing Dalmane (flurazepam HCl), please consult Complete Product Information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; and in acute or chronic medical situations requiring restful sleep. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended.
Contraindications: Known hypersensitivity to flurazepam HCl.
Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Use in women who are or may become pregnant only when potential benefits have been weighed against possible hazards. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage.
Precautions: In elderly and debilitated, initial dosage should be limited to 15 mg to preclude oversedation, dizziness and/or ataxia. If combined with other drugs having hypnotic or CNS-depressant effects, consider potential additive effects. Employ usual precautions in patients who are severely depressed, or with latent depression or suicidal tendencies. Periodic blood counts and liver and kidney function tests are advised during repeated therapy. Observe usual precautions in presence of impaired renal or hepatic function.
Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported were headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins and alkaline phosphatase. Paradoxical reactions, *e.g.*, excitement, stimulation and hyperactivity, have also been reported in rare instances.
Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg initially until response is determined.
Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



when restful sleep is indicated

Dalmane®
(flurazepam HCl)

One 30-mg capsule *h.s.* — usual adult dosage (15 mg may suffice in some patients).
One 15-mg capsule *h.s.* — initial dosage for elderly or debilitated patients.

- induces sleep within 17 minutes, on average
- reduces nighttime awakenings
- sustains sleep 7 to 8 hours, on average, without repeating dosage

REFERENCES: 1. Kales A, *et al*: *Arch Gen Psychiatry 23*:226-232, Sep 1970
2. Karacan I, Williams RL, Smith JR: The sleep laboratory in the investigation of sleep and sleep disturbances. Scientific exhibit at the 124th annual meeting of the American Psychiatric Association, Washington DC, May 3-7, 1971
3. Frost JD Jr: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ
4. Vogel GW: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ
5. Dement WC: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ

ROCHE

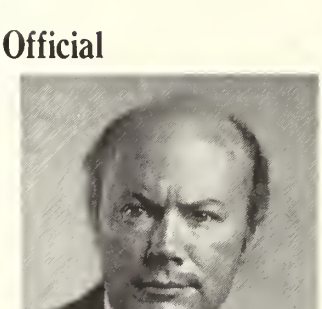
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Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Opinion & Dialogue

Is there a need for a drug compendium?

Government Health Official

Henry E. Simmons, M.D.
Deputy Assistant Secretary for Health
Department of Health, Education and Welfare



A drug compendiu of the type I envisior would fill a definite need for the practi ing physician. Such compendium wou give him all th information nec essary for usir a drug intelligently, and it would do so in a clear, concise, convenient, objective and balanced fashion.

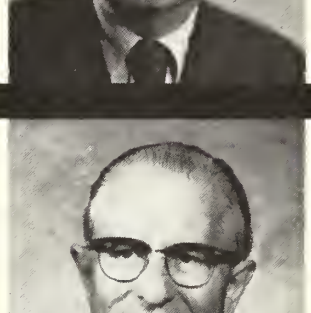
What a Compendium Should Contain

I believe the compendium should inform the doctor what a drug will do, when he should use for what type of patient, for how long, in what dose, what benefits his patient is likely to obtain, the risks involved, and cross-reactior with other drugs.

The information would be based on the package insert and have the same legal status. In fac a complete compendium with cor plete and current information might even eliminate the necessi

Maker of Medicine

Joseph F. Sadusk, Jr., M.D.
Warner-Lambert Company



A drug compendium, or preferably compendia, should, I believe, be private, not federal, ir sponsorship. They should contair comprehensive listings of drugs available for prescribing. They should be single, legibly printed volumes of reasonable size, updated quarterly or semiannually and completely revised every yea

Function of a Compendium

A compendium should furnish the following information on drugs in the following order: indic tions for use, side effects, advers drug reactions, contraindications drug interactions, drug dosage ai the dosage forms marketed. Dru prices should not be included because they vary so widely and change rapidly.

No compendium should set forth drugs of choice or discuss relative efficacy. Such questions must be left for the practicing ph sician to decide, whether on the basis of the medical literature, h own clinical experience, advice c colleagues, information supplied by manufacturers, and so on.

Nor should a compendium undertake to educate the doctor how to use drugs. Rather, it must be a reference source designed p marily to refresh his memory as t drugs he may not use regularly. I

for a package insert in many instances. This would constitute a substantial saving for the manufacturer.

By a complete compendium, I do not mean a volume of prohibitive size. You don't need a book describing 25,000 products with an enormous amount of repetition. Rather, drugs should be arranged by class. Mutually applicable information would be provided, along with brief discussions pinpointing differences in specific drugs of that class. Listings would be cross-indexed in a useful way.

Other Available Documents as Sources of Information

Existing references such as PDR and the AMA Drug Evaluation are obviously useful but they are incomplete. Either they are not cross-referenced by generic name and do not group drugs with similar characteristics, or they do not list all the available and legally marketed drugs. And some of those omitted may be very useful.

On the other hand, drugs made by more than one supplier, tetracycline for example, may be fully described a dozen times in the same book.

While perhaps PDR could be rearranged and cross-indexed with generics included, and while the AMA Drug Evaluation might also be modified and expanded, I am not sure that the end result would have all the attributes required for a useful compendium. At the same time, you would run the risk of amassing a voluminous and unwieldy tome.

Should Editorial Comments Accompany the Listings?

Subjective judgments, in my opinion, have no place in a compendium. However, if there is substantial evidence based on a sound body of science concerning relative efficacy of several drugs, certainly that information should be included. The committee of experts compiling and editing a particular section would also have to assess and indicate instances where a meaningful difference between drugs is pertinent.

Sponsorship, Compilation and Editing

Producing a book like this would undoubtedly be difficult and demanding. It would obviously take a great deal of talent and expertise, and would require a varied and experienced group, ranging from writers and editors to highly skilled clinicians and pharmacologists. Style, format and clarity of language would play an important part in determining the usefulness of the book. And it should be updated periodically and completely revised annually.

I have no opinion whether the government or the private sector should sponsor and/or finance the compendium. What is most important is that the compendium be an authoritative, objective and useful source of information for the doctor to have at hand as a ready reference.

---

should in no way imply control over the practitioner's prerogatives.

Why Another Compendium?

A practicable, single-volume compendium cannot, nor is it necessary to, include all drugs on the market today. From my practice of internal medicine for some 25 years, my experience as a consultant, and as a faculty member of four or five medical schools, I would estimate that a doctor uses only 30 to 35 drugs regularly. The 1972 Physicians' Desk Reference, incidentally, contained about 2,500 entries.

As to whether there should be a federal compendium, in my opinion, as stated earlier, the answer is easy—there should *not* be one. The proposal assumes that existing compendia are inadequate. We're not sure of that at all. Whatever its imperfections, the present drug information system in the U.S. is open, multifaceted, pluralistic and extensive. Good compendia exist, as well as other ample sources on drug therapy, ranging from journal literature through AMA Drug Evaluation to company materials. Not all physicians may use such sources as often or as well as they should, but that is the fault of the man, not of the sources.

In any event, rather than produce another book, it makes much more sense to work on improving existing compendia, and perhaps they could, as knowledge advances, include more accumulated clinical data and experience, and more information on drug interactions and adverse reactions.

Implications of a Federal Compendium

Take a hard look at the implications of a federal compendium. It would have the force of law, virtually dictating what drugs to use and how to use them. In effect, it would be a regulatory document with legal or quasi-legal status, posing medical/legal problems similar to those the doctor may now encounter if and when he departs from the provisions of the package insert. A compendium under federal aegis would tend to restrict decisions on drug therapy to one orthodox level—a most dangerous trend for medicine.

New Compendium—A Medical Option

I detect no ground swell of initiative or support whatsoever for a federal compendium—or, for that matter, for a new compendium of any type. A 1969 PMA survey conducted by Opinion Research Corporation found that only 15 per cent of those physicians interviewed felt a new compendium was needed. And a large majority did not favor the involvement of the federal government if one were to be created, preferring instead a nongovernmental consortium.

Even if we come to a time when the medical profession itself opts for a new kind of compendium, it should be handled and financed, ideally, outside both government and industry. Final review and editorial authority could be delegated, say, to specialty bodies and medical societies—but above all, *not* the government.

Surely the health care system in the United States has far more vital matters to consider than the extensive cost and effort that would have to go into the preparation and maintenance of a new, monolithic compendium, and especially one bearing the imprimatur of the federal government.

Opinion & Dialogue

What is your opinion, doctor? We would welcome your comments.

The Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W.
Washington, D.C. 20005

PMA

Notice of Workshops on Federal Diagnostic X-Ray Standard

A Federal standard for diagnostic x-ray equipment becomes effective August 1 of this year. This equipment standard primarily applies to manufacturers and assemblers but users are also affected.

Because the final standard was extensively revised and amended since first proposed in 1971, it is not surprising that many individuals affected are not yet knowledgeable about its full implications.

Under the standard, x-ray manufacturers are responsible for producing equipment and components that perform according to requirements of the standard. Assembler's primary responsibility is to install the system according to the manufacturer's specifications and to use the type of components called for by the standard. He must certify that these two conditions have been met by filing specified forms with the Food and Drug Administration's Bureau of Radiological Health, the State Radiation Control Agency, and the purchaser.

One of the principal protection provisions of the standard requires machines to be capable of restricting the x-ray beam to the size of the film or fluoroscopic image receptor. The standard also contains provisions intended to make it possible for operators to reproduce more consistently a given image quality for given voltage, current, and time settings. This capability, in combination with good x-ray examination techniques, will tend to minimize film retakes and unnecessary exposure.

To familiarize persons who are affected by the new standard, especially commercial installers and users who may perform their own installations, with their responsibilities under the new regulations, workshops are being conducted by the Food and Drug Administration. These one-day sessions are being held in various parts of the U.S. Persons interested in attending are urged to contact the FDA Radiation Control Officer in their region for additional information. Workshops will also include discussions of proposed Federal requirements involving resale of used x-ray equipment.

Contact:
Thomas R. Johnson, Jr.
Region IV
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
880 West Peachtree Street, N.W.
Atlanta, Georgia 30309
Telephone: 404-526-3576

CLASSIFIED ADVERTISEMENTS

PHYSICIAN NEEDED

For the Third Consecutive year patients with Muscular Dystrophy or related neuromuscular diseases will be attending a private camp at Bethelwoods Camp near York, South Carolina, the weeks of June 16 and 23

Due to the complexities of the disease we need a trained advisor to volunteer his time for one or two weeks His duties would be to check each camper once daily, supervise medication and administer to the usual run of cuts, sunburn and bruises York County Hospital will be on stand-by for any emergency should one occur Medical records of each child will be available if needed

We feel the one or two weeks of camp have a lot to offer: fishing, relaxing in the shade of the pines, and that your helping us will also help you

Room and board are furnished for two—doctor and wife or child, with comfortable quarters in a 22 ft. Nomad Camper, away from the confusion of the dorm areas.

For further information call or write:
Muscular Dystrophy Associations of America
533 Harden Street
Columbia, South Carolina
779-4878

OPINIONS WANTED

I am currently editing a book on the personal testimonies of Christian physicians and how they view the current medical-ethical issues of today, i.e., abortion, euthanasia, organ transplants, when is a person officially dead, sterilization, psycho-surgery, semen donors, ovum donors, host mothers, reversed aging, artificial organs, genetic counseling, etc. I would be interested in hearing from any Christian physician who would be interested in contributing to such a book or who would be able to suggest a Christian physician to write for this book Please contact me at the following address:

Claude A. Frazier, M.D.
4-C Doctor's Park
Asheville, NC 28801

ANNOUNCEMENT OF HUMANITIES SEMINARS

Washington, D. C.—Ethical conflicts, the rights of patients and practitioners, and similar questions current in health care will be explored by practicing physicians and other health professionals in a new program of seminars funded by the National Endowment for the Humanities. The program, the first of its kind, will bring together for a month of full-time study and discussion medical practitioners and distinguished humanists whose work has focused on problems related to medicine and health care. A grant of $105,303, to support three separate seminars during the summer and fall of 1974, was announced by Dr. Ronald Berman, Chairman of the Endowment.

Directing the seminars will be Dr. Charles E. Rosenberg of the University of Pennsylvania, Dr. William F. May and Dr. David H. Smith of Indiana University, and Dr. H. Tristram Engelhardt, Jr. of the University of Texas Medical Branch at Galveston.

Focal points for each seminar will be selected issues based on case studies from medical practice which will be examined in their ethical, philosophical, and/or historical contexts. The new program aims to improve the quality of leadership in medicine by broadening the perspective from which physicians and other health practitioners view their profession and society at large. In launching this project the Endowment's premise is that the knowledge and insights unique to the humanities are needed more urgently than ever in the contemporary world, and that they should be made available to present and future leaders of the nation's professions.

Twelve to fifteen participants, from all branches of the health professions, will be chosen for each seminar by the individual directors in consultation with selection committees. Participants will attend tuition free and will receive a $1,500 stipend for room, board, and transportation. They may be accompanied by members of their families, but no increase in stipend will be allowed.

One seminar will be taught by Dr. Rosenberg, Professor of the History of Medicine and member of the history and medical school faculties at the University of Pennsylvania. Contemporary problems such as psychiatric legitimacy, hospitals, women and medicine, and medical ethics will be explored in the context of the past century. The seminar will run from July 15 to August 9, 1974, at the University of Pennsylvania in Philadelphia. The deadline for receipt of applications is May 31, 1974; selections will be announced by June 7.

Participants in a second seminar, to be held on the Williams College Campus in Massachusetts, will examine selected ethical issues in medical practice and their consequences for professional conduct. These will include the doctor-patient relationship, the ethos of the hospital and the claims of society at large. Dr. May, Professor and Chairman of the Department of Religion at Indiana University, will direct the seminar. Associate director will be Dr. Smith, Professor of Social Ethics at Indiana. The seminar will run from July 15 to August 9, 1974; deadline for receipt of applications is May 31, 1974, and selections will be made by June 7.

The focus of the third seminar will be ethics and philosophy in the health-care disciplines. Dr. Engelhardt, a philosopher and physician who is Professor of the Philosophy of Medicine at the University of Texas Medical Branch at Galveston,

will direct a case-oriented review of the areas of current ethical controversy in medicine. He will attempt to relate such issues as rights and duties of patients and practitioners and concepts such as the quality of life and human dignity, to decision-making in medical practice. The seminar will be held on the Galveston campus and will run from September 9 through October 4, 1974. Deadline for receipt of applications is June 17, 1974; selections will be announced by July 1.

All requests for information and applications should be addressed to the individual seminar directors as follows:

Professor H. Tristram Engelhardt, Jr.
Institute for the Medical Humanities
University of Texas Medical Branch
Galveston, Texas 77550
(713) 765-2376

Professor William F. May, Chairman
Department of Religious Studies
Sycamore Hall 230
Indiana University
Bloomington, Indiana 47401
(812) 337-3531

Professor Charles E. Rosenberg
Department of History
University of Pennsylvania
Philadelphia, Pennsylvania 19174
(215) 594-8452 or 8453

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CANDEPTIN Vaginal Ointment Therapy Pack—two 75 gm. tubes
CANDEPTIN Vagelettes Therapy Pack—28 vaginal capsules
CANDEPTIN Vaginal Tablet Therapy Pack—28 vaginal tablets

Brief Summary

Description: CANDEPTIN (Candicidin) Vaginal Ointment contains a dispersion of Candicidin powder equivalent to 0.6 mg. per gm. or 0.06% Candicidin activity in U.S.P. petrolatum. 3 mg. of Candicidin is contained in 5 gm. of ointment or one applicatorful. CANDEPTIN Vaginal Tablets contain Candicidin powder equivalent to 3 mg. (0.3%) Candicidin activity dispersed in starch, lactose and magnesium stearate.

CANDEPTIN VAGELETTES Vaginal Capsules contain 3 mg. of Candicidin activity dispersed in 5 gm. U.S.P. petrolatum.

Action: CANDEPTIN Vaginal Ointment, Vaginal Tablets, and VAGELETTES Vaginal Capsules possess anti-monilial activity.

Indications: Vaginitis due to *Candida albicans* and other *Candida* species.

Contraindications: Contraindicated for patients known to be sensitive to any of its components. During pregnancy manual Tablet or VAGELETTES Capsule insertion may be preferred since the use of the ointment applicator or tablet inserter may be contraindicated.

Caution: During treatment it is recommended that the patient refrain from sexual intercourse or the husband wear a condom to avoid re-infection.

Adverse Reaction: Clinical reports of sensitization or temporary irritation with CANDEPTIN Vaginal Ointment, Vaginal Tablets or VAGELETTES Vaginal Capsules have been extremely rare.

Dosage: One vaginal applicatorful of CANDEPTIN Ointment or one Vaginal Tablet or one VAGELETTES Vaginal Capsule is inserted high in the vagina twice a day, in the morning and at bedtime, for 14 days. Treatment may be repeated if symptoms persist or reappear.

Available Dosage Forms: CANDEPTIN Vaginal Ointment is supplied in a Patient Therapy Pack, containing two 75 gm. tubes with two applicators for the full course of treatment. CANDEPTIN Vaginal Tablets are packaged in boxes of 28, in foil with inserter—enough for a full course of treatment. CANDEPTIN Vagelettes Vaginal Capsules are packaged in a Patient Therapy Pack, containing 28 CANDEPTIN Vagelettes Vaginal Capsules (2 boxes of 14), for the full course of treatment. Store under refrigeration to insure full potency.

Federal law prohibits dispensing without prescription.

References:

1. Melges, F. J.: Obstet. Gynecol. *24*:921, Dec. 1964. 2. Cameron, P. F.: Practitioner *202*:695, May 1969. 3. Olsen, J. R.: Journal-Lancet *85*: 287, July 1965. 4. Giorlando, S. W.: OB/GYN Digest *13*:32, Sept. 1971. 5. Decker, A.: Case Reports on file, Medical Department, Julius Schmid. 6. Friedel, H. J.: Md. State Med. J. *15*:36, Feb. 1966. 7. Roberts, C. L. and Sullivan, J. J.: Calif. Med. *103*:109, Aug. 1965. 8. Giorlando, S. W., Torres, J. F. and Muscillo, G.: Am. J. Obstet. Gynecol. *90*:370, Oct. 1, 1964. 9. Abruzzi, W. A.: Western Med. *5*:62, Feb. 1964.

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The highly effective monilia-cide with high cure rates proved clinically.[1-9]

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- Sensitivity and temporary irritation with CANDEPTIN (candicidin) Vaginal Ointment, Vaginal Tablets, and VAGELETTES Vaginal Capsules have been extremely rare.

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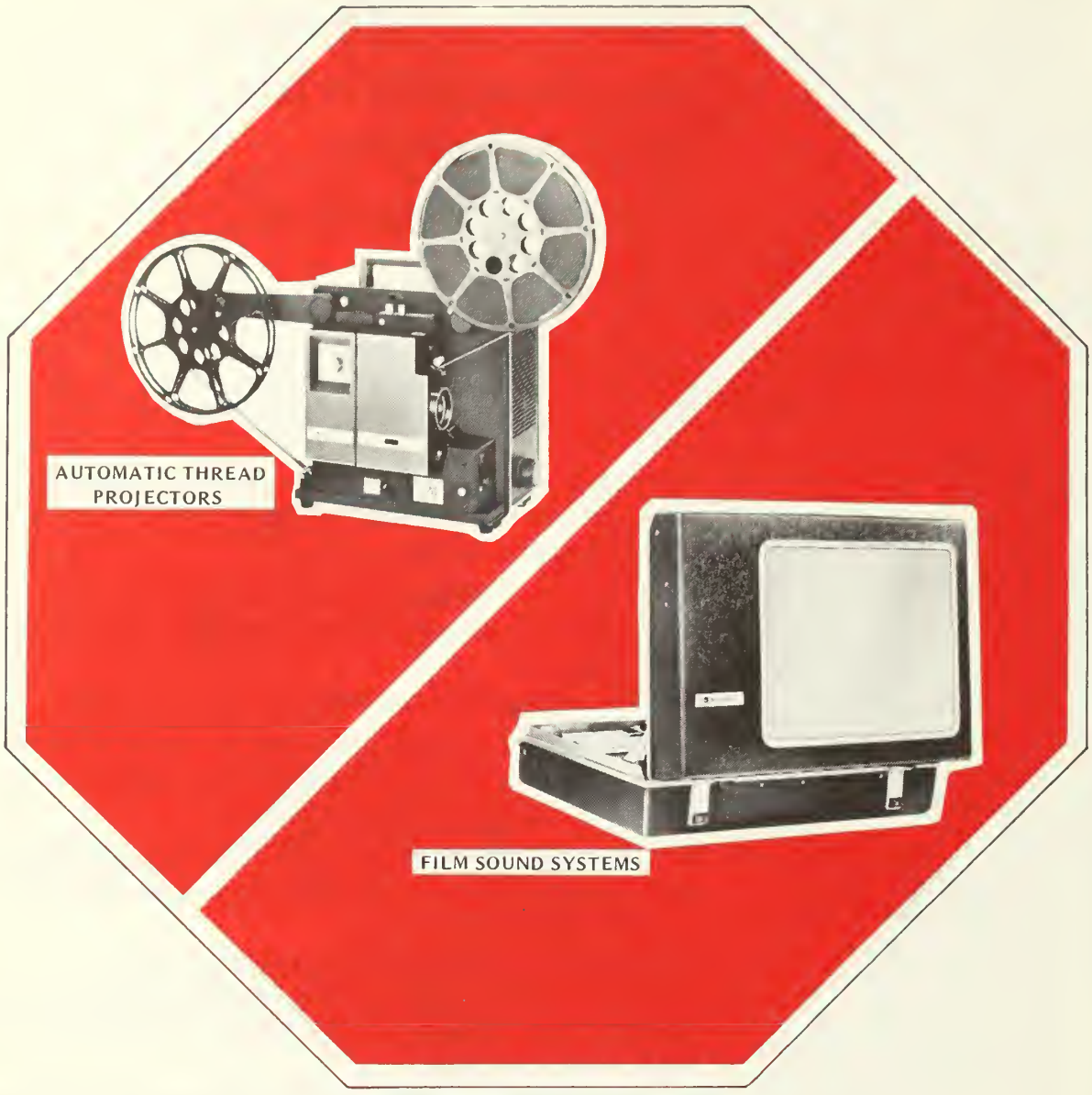


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Breast self-examination:

KEY ROLE OF THE PHYSICIAN

item:	**Breast cancer is a major concern of American women, according to a recent Gallup study conducted for the American Cancer Society.**
item:	**Although aware that early discovery improves the chances of cure, and that BSE can lead to early discovery, *fewer than 1 in 5* women practice BSE, and *only half* have an annual breast examination by a physician.**
item:	**Only 35% of all women polled reported that a *physician* had ever raised the subject of breast self-examination, and only 24% had received instruction from the physician on how to do it. Even among women who regularly see a gynecologist, only 34% had been instructed on BSE.**
item:	***But,* among women who received personal instruction from their physicians, the overwhelming majority *(92%)* practiced BSE during the preceding year.**

The Gallup study revealed that, far more important than increasing awareness of breast self-examination, is the problem of inducing women to practice it regularly. The physician plays a key role in this—by teaching women the correct technique, and instilling in them the confidence that will assure their continued practice of BSE.

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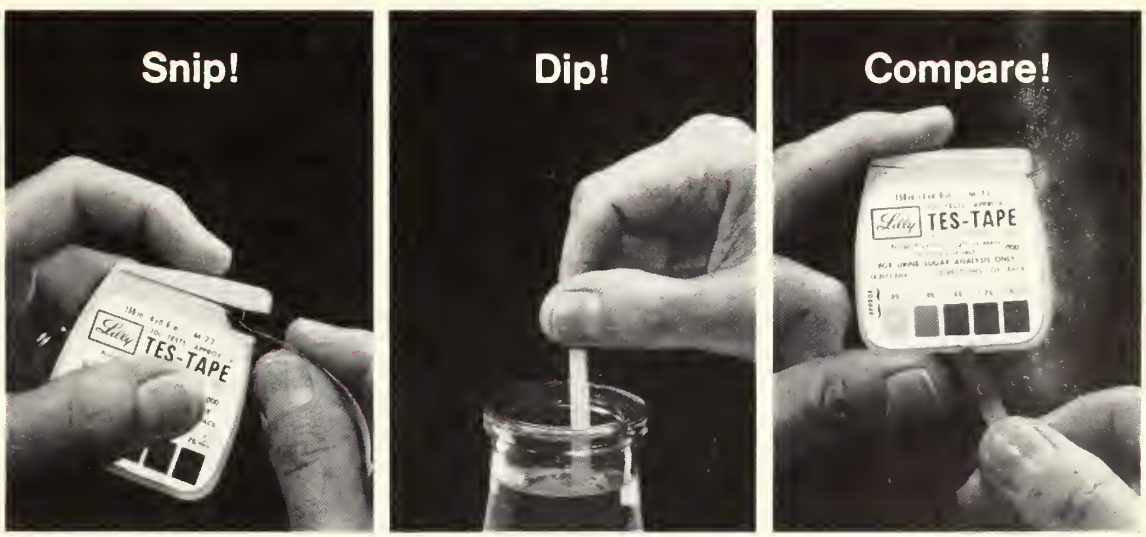
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For further information on this subject, the following references are provided:

1. Henry BW, *et al: Dis Nerv Syst 30*:675-679, Oct 1969.
2. Hollister LE, *et al: Arch Gen Psychiatry 24*:273-278, Mar 1971.
3. Claghorn J: *Psychosomatics 11*:438-441, Sept-Oct 1970.



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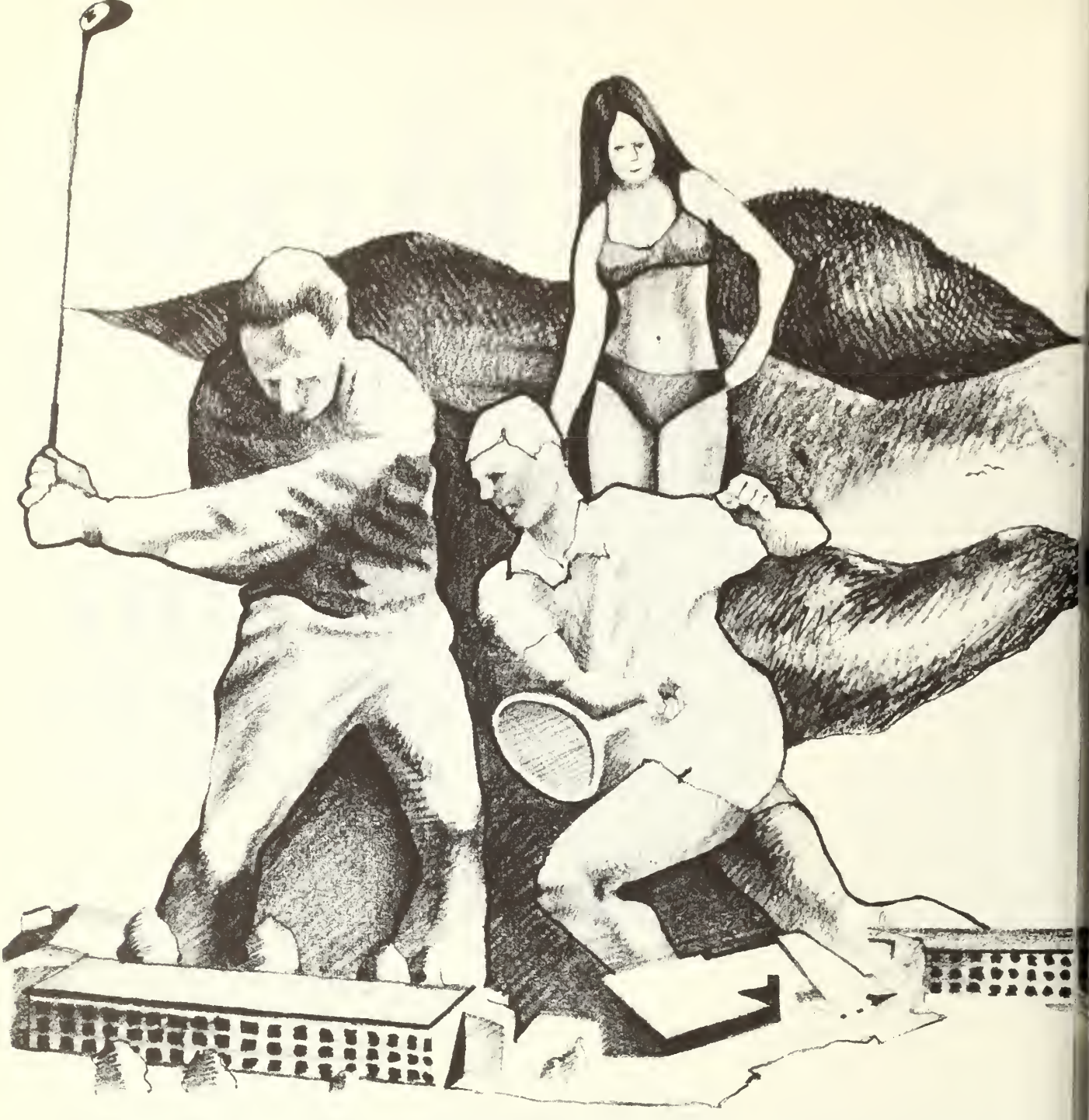
in psychoneurotic anxiety states with associated depressive symptoms

rveillance because of their predisposition to habituation and dependence. In egnancy, lactation or women of childaring age, weigh potential benefit ainst possible hazard.

ecautions: If combined with other psyotropics or anticonvulsants, consider refully pharmacology of agents employed; drugs such as phenothiazines, rcotics, barbiturates, MAO inhibitors d other antidepressants may potentiate action. Usual precautions indicated in tients severely depressed, or with latent pression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association. Business office: 1508 Washington Street, Columbia, South Carolina 29201

Subscription price: $6.00 in the U. S. ($7.00 per year, Foreign) Second Class Postage paid at Columbia, S. C. and at additional mailing offices.

The views expressed in this publication are those of the writers and do not necessarily reflect the opinions of the South Carolina Medical Association.

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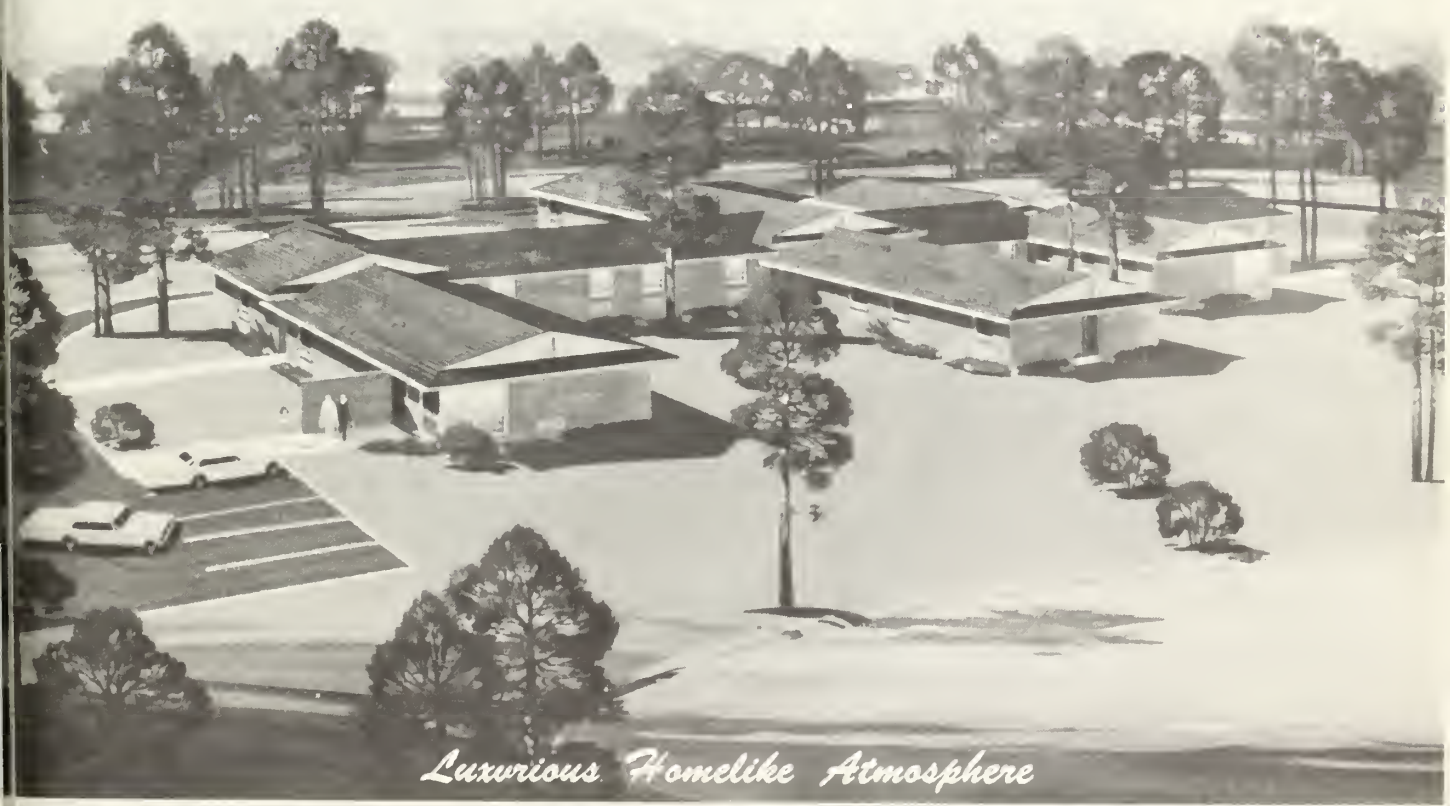
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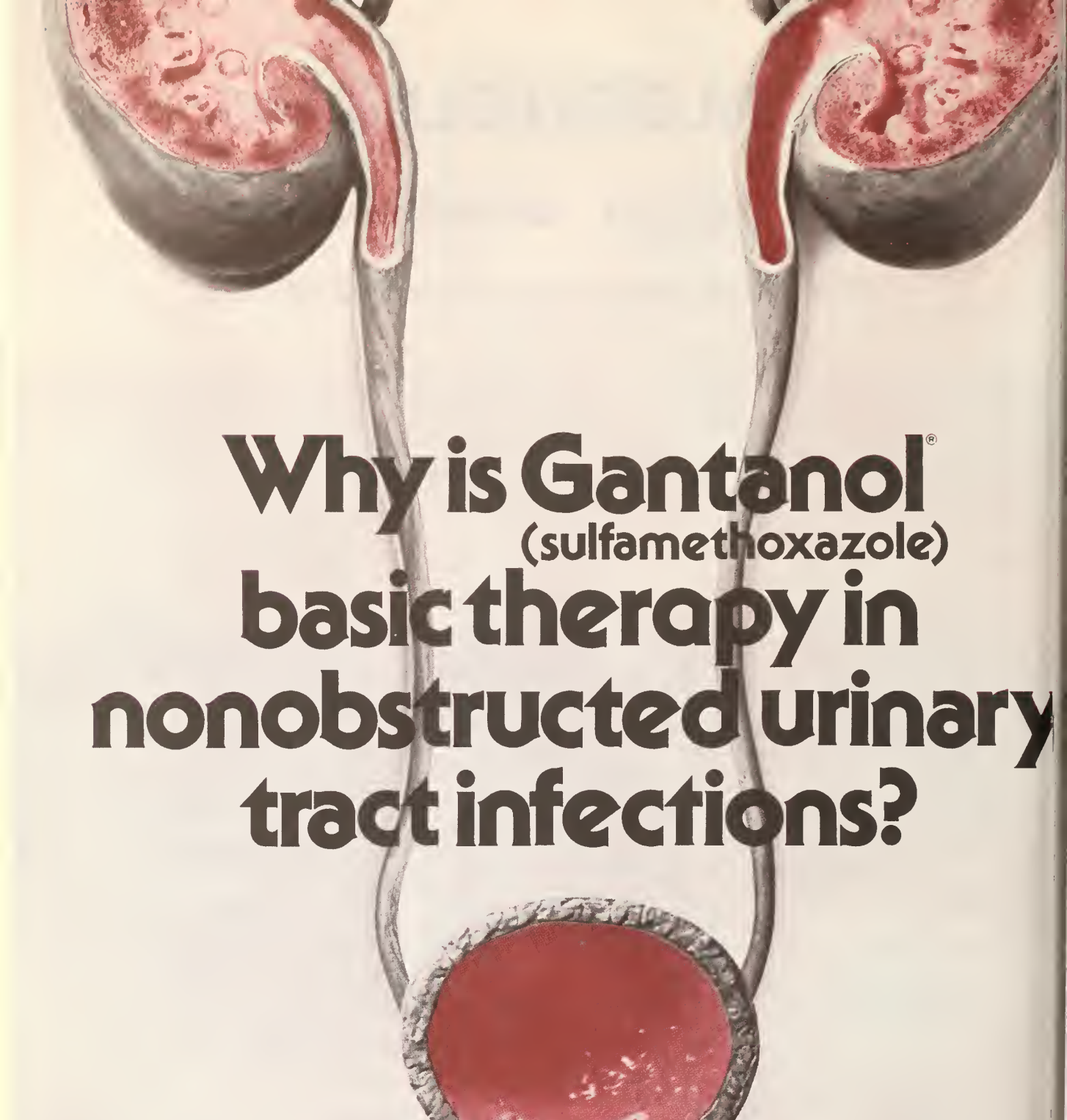
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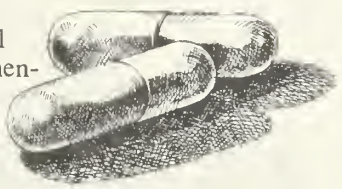
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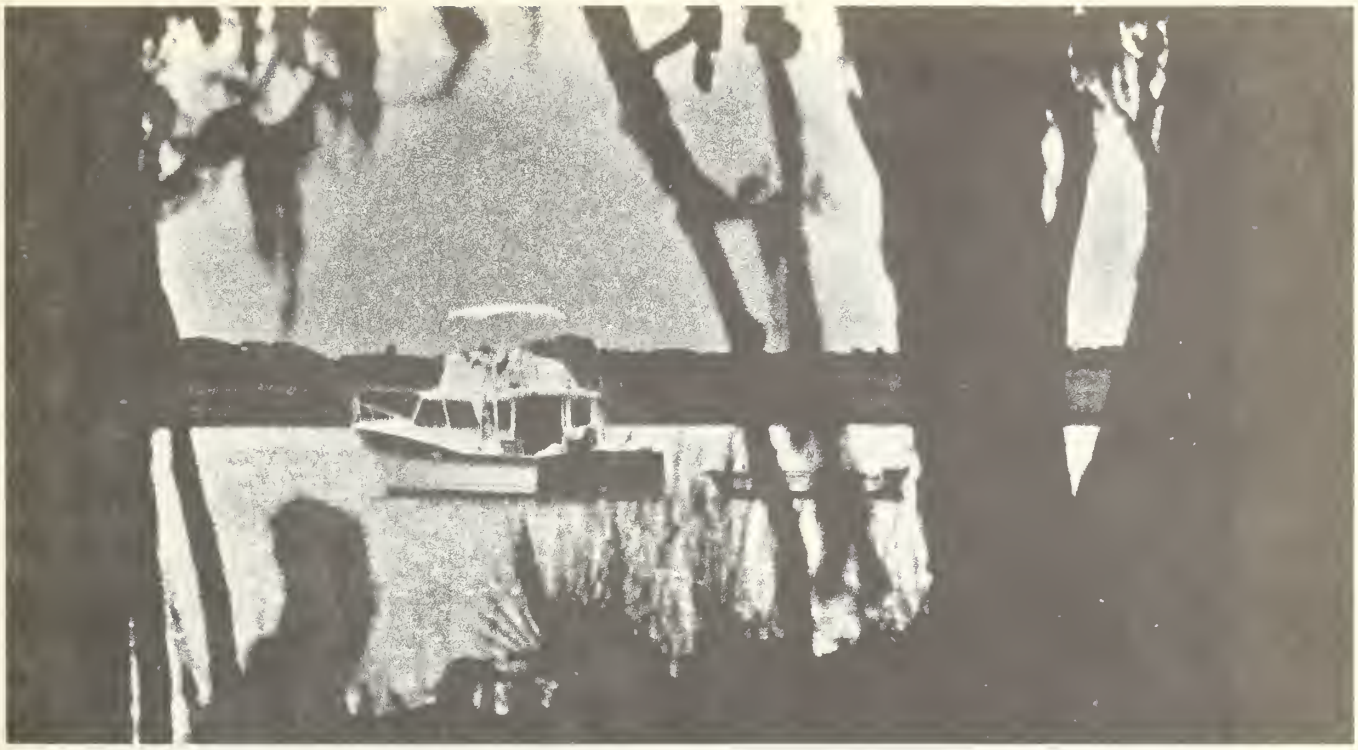
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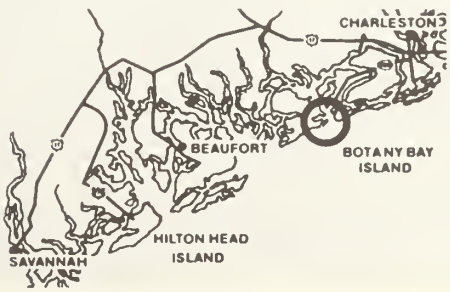
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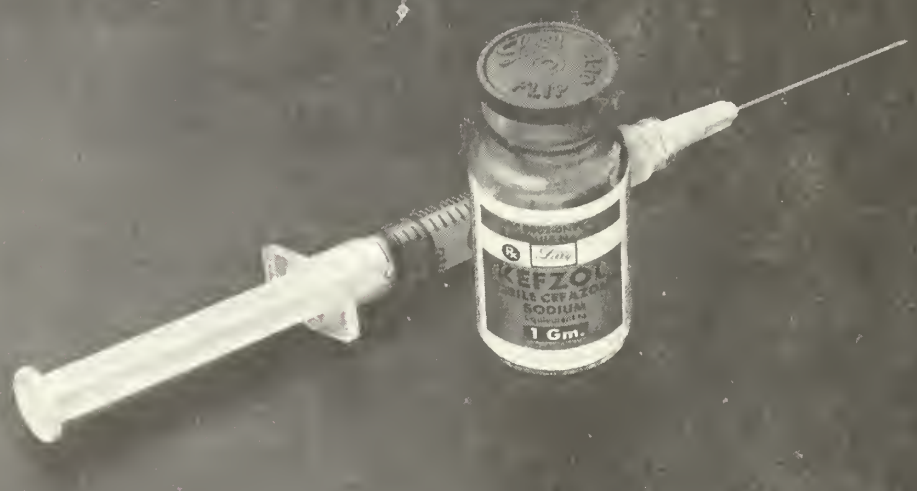
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THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 70 JUNE, 1974 NUMBER 6

THE MEDICAL UNIVERSITY OF SOUTH CAROLINA, 1824-1974

JOSEPH I. WARING, M.D.

Formal medical education began in South Carolina with the founding of its medical college in 1824. Previous to this time the physician had to obtain his education abroad, usually at Edinburgh, until the opening of the medical school at the University of Pennsylvania in 1765 gave him a more convenient source. Most of the South Carolinian medical students attended the Pennsylvania school, and it was a group of Pennsylvania graduates who were responsible for the founding of the Medical College of South Carolina.

Sponsored by the Medical Society of South Carolina in Charleston, and promoted by Dr. Thomas Cooper, president of the South Carolina College in Columbia, the young school opened with a faculty of seven prominent medical Charlestonians. Attendance for two years of four months scholastic work each was required of the student for attainment of a degree.

This institution, the first medical school in the South, filled a definite need and grew rapidly to a peak enrollment in 1860. The faculty included distinguished physicians; Samuel Henry Dickson, later to serve at Jefferson Medical College, was author of well recognized works; Henry R. Frost, writer of a treatise on materia medica; Stephen Elliott, graduate of Yale, the only faculty member not a product of Pennsylvania, was an outstanding writer on botany, a subject then dear to the medical heart; James Moultrie, Jr., author, who was to be president of the American Medical Association, joined later. James Ramsay in surgery, Thomas Prioleau in obstetrics and gynecology, Edmund Ravenel in chemistry and pharmacy, and J. E. Holbrook in anatomy, all added luster to the faculty.

Not only did these men offer their talents to the State, they also had to assume the financial responsibility of a college whose only governmental support lay in the granting of a charter. But this burden was assumed willingly and borne

for nearly ninety years, when the Medical College came under the financial wing of the State.

Charleston provided ample clinical hospital material for the students in its several hospitals. In addition, the College opened its own free infirmary for Negroes, perhaps the first of its kind to be established specifically for teaching purposes. The original temporary quarters of the College were replaced by a masonry building, which, despite serious damage by the earthquake of 1886, served until a new college plant was built in 1913. Support came from student fees, payment by the City of Charleston for care of its indigents, total grants over the early years of $17,000 from the state, and personal contributions by the faculty.

After some years of operation, the school was abandoned by its faculty, which resented the control of the Medical Society, and proceeded to set up a new rival school. In 1838 the older school gave up the struggle and turned over its assets to the younger institution.

Despite the admonitions of James Moultrie that while medical education in the state compared well enough with that of similar schools in the country, but that it could not compare with some foreign systems, such as that of the French, there was little change in method over the years. In 1856 the Medical College was ranked fifth among the schools of the country in terms of enrollment and graduates. A grant from the legislature allowed addition of another floor to the college building to house the expanded student body.

The Civil War blotted out the institution for four years as its faculty and students responded to the call of the Confederacy. Reorganized in 1865 with 34 students, it pursued a rather uncertain course, still without state support. The poverty of the times kept students away from an able faculty consisting of F. Peyre Porcher, Henry R. Frost, Middleton Michel, Eli Geddings, Julian J. Chisolm, Francis L. Parker and others. Enrollment dropped to nearly zero. To check this threat of dissolution, the professors assumed an added burden by abolishing their fees. But after four years the picture was brighter and fees could be reinstituted. While enrollment increased it never reached the level attained before the War until the recent years of the twentieth century.

Extension of the courses to three years was accomplished in 1890 and furthered to four years at the turn of the century. The Flexner Report on Medical Education (1909) noted that there were 34 members of the teaching staff, none of whom was full time, that there were 213 students, whose fees were the only support of the school. Its estimate of the state of affairs was not complimentary. Two years later an unsuccessful attempt was made to have the University of South Carolina assume operation of the school. Failing in this effort, the supporters of the College, particularly dean Robert Wilson, undertook a drive which in 1913 resulted in establishing the school as a separate state institution. A new building opposite the Roper Hospital provided adequate space for its activities.

In the early 1940's adoption of a Master Plan with an Expansion Program inaugurated the course of growth which continues to the present. The School of Graduate Studies was initiated in 1949. The



The First (1914) Unit of the Present Plant



The present Main Plant of the Medical University

Medical College Hospital went into operation in 1955. The School of Dentistry went into operation in 1967.

Beginning in 1937 there was a gradual increase in the number of full time professors, with a decline in the number of volunteer part time teachers. By 1960 reorganization was completed. All departments except one now have full time staffs, totaling 353 members.

Establishment in 1966 of a Veterans Administration Hospital adjacent to the school provided valuable teaching material. By 1970 acquisition of new property had allowed the construction of the Library-Administration Building and the Basic-Sciences-College of Dental Medicine Building. Research was promoted by these facilities, and federal grants-in-aid provided generous funds for this purpose, as well as for construction of new facilities.

In 1952 after the program of expansion had become a certainty, the name of the institution was changed back to the original of this continuous medical school chain in South Carolina, "The Medical College of South Carolina."

Under Dr. Kenneth M. Lynch's able administration the progress of the school had been extraordinary, both in physical extent and in scholastic status. Following Dr. Lynch's mandatory retirement in 1960, Dr. John T. Cuttino served as acting president for a short period and was succeeded by Dr. H. Rawling Pratt-Thomas as president. Dr. William M. McCord was appointed president in 1965 and has been a most effective occupant of the presidential chair ever since. During this period, the College became connected with the Regional Medical Program, and later it was associated with the Franklin C. Fetter Health Center, operated by the Office of Economic Opportunity. Classes have doubled in size and the graduating class has increased from 80 to 165 members. The first Black student was admitted to the College of Medicine in 1965 and now there are 19 such students in the school.

In 1969 the name was changed again by an Act of Legislature to "Medical University of South Carolina," and the hospital became the Medical University Hospital by action of the Board of Trustees, while each of the separate schools became Colleges of the Medical University with a dean and an administrative staff.

The same Act of 1969 authorized the Commission on Higher Education to proceed with the development of a Higher Education Consortium. The term consortium is being used by the Medical University in arrangements with other hospitals of the State in connection with its program of graduate medical training.

In February 1970, a Department of Family Practice, now housed in the former Riverside Geriatric Home, was initiated and grew rapidly to the point where it



Proposed Storm Eye Institute

became a model for similar activities over the country. Thus, the College was focusing its attention anew on a phase of medicine long neglected in most medical schools. Recently, it has included the training of physicians' assistants under the Medex program.

The College of Medicine now has a total teaching staff of 353 full time faculty members and 230 part time instructors, including those in the Area Health Education Center Program. Plans are afoot for erection of additional buildings to meet the needs of an expanding institution.

The master plan for further development of the University calls for much enlargement of present facilities, including a 250-bed Institute for Human Development and an Eye Institute. Wide expansion of the Department of Radiology and of the Clinical Laboratories is in view. The Medical University Hospital is to be modified. A Student and Continuing Education Center and a Business Service Building are to be added. Considerable renovation of some of the older buildings in the Quadrangle Area is to be done to make room for the College of Pharmacy and certain laboratory space.

The Medical College is now involved in new programs which are a far cry from the thoughts of the small and dedicated group of physicians of 1824. A medical educational alliance with the College of Charleston, the Citadel, and the Baptist College locally and seven other colleges of the State offers new educational opportunities and expanded resources. The Area Health Education Center Program, in which certain hospitals and physicians over the state provide medical supervision of students in diverse areas, expands medical teaching and offers the opportunity for participation by qualified professionals. Five major hospitals of the state and well over 100 members of their staffs thereby become actively functioning parts of the medical educational effort. In addition, Charleston hospitals furnish a broad field for medical teaching outside of the Medical University Hospital.

Under an arrangement with colleges of South Carolina it is now possible for an exceptional student to complete a five years course after high school to achieve the degree of M.D.

With the development of the College of Allied Health Sciences, the College of Pharmacy, the College of Nursing, the College of Dental Medicine, and the College of Graduate Studies, the College of Medicine now is the central portion of a major educational effort in the health field. An active audiovisual program carries the message of medical progress all over the state. A system of statewide preceptors furthers the education of members of the Medex program. Enrollment for 1974 in the College of Medicine is estimated at 660 students. The old Medical College has come of age, and promises well for a bright future.

In 1974 as the Medical University of South Carolina celebrates the sesquicentennial of the founding of the College of Medicine it finds itself in an era of technology and change, an era of confusion and question about the future of society, of personal relations, and notably of the relations of doctor and patient. The promise is bright that it may do its part in finding solutions for the problems of today and tomorrow.

CALENDAR OF EVENTS
MEDICAL UNIVERSITY OF SOUTH CAROLINA
SESQUICENTENNIAL

June 6, 1974	Commencement exercises at the Medical University.
June 13-15, 1974	Annual Meeting of the South Carolina Surgical Society.
August 16-18, 1974	Meeting of the Southeastern Dialysis and Transplant Association.
September 12-13, 1974	Seminar of the Department of Radiology.
September 23-24, 1974	Seminar of the Department of Physiology, Robert F. Pitts, M.D. of Cornell University Medical College, Visiting Speaker.
October 2-4, 1974	First Annual National MEDEX Conference
October 3-4, 1974	Seminar of Department of Urology, William Boyce, M.D. of Bowman Gray School of Medicine, Visiting Speaker.
October 7-8, 1974	Seminar of the Department of Family Practice, Professor P. S. Byrne, O.B.E. of the University of Manchester, Great Britain, Visiting Speaker.
October 10-11, 1974	Seminar of the Department of Microbiology, Byron H. Waksman, M.D. of Yale University, Visiting Speaker.
October 10-12, 1974	Southeastern Regional Meeting of the American College of Physicians.
October 17-18, 1974	Seminar of the Department of Psychiatry and Behavioral Sciences, Roy R. Grinker, Sr., M.D. of the Michael Reese Hospital and Medical Center in Chicago and Julius Axelrod, Ph.D. of the National Institute of Mental Health, Visiting Speakers.
October 23-25, 1974	Carolinas Hospital Public Relations Society Meeting.
Oct. 31-Nov. 1, 1974	Seminar of the Division of Neurosurgery.
November 2-3, 1974	Founders' Day Weekend. Sesquicentennial Alumni Awards and Faculty Awards to be presented.
November 6-8, 1974	Meeting of the South Carolina Chapter of the American Academy of Family Physicians.
November 7-8, 1974	Seminar of the Department of Neurology, Dr. Derek Denny-Brown, formerly of Harvard Medical School, Visiting Speaker.
November 16, 1974	Annual Meeting of the Red Cell Club.
November 21-22, 1974	Seminar of the Department of Otorhinolaryngology, John F. Daly, M.D. of the New York University Medical Center, Visiting Speaker.
November 21-22, 1974	Psychiatric Educators' Workshop, "The Assessment of Clinical Learning in the Psychiatric Education of Medical Students."
December 9-10, 1974	Seminar of the Division of Plastic Surgery, Dr. Raymond Brauer of Houston, Visiting Speaker.
December 12-13, 1974	Seminar of the Department of Orthopaedics.
December 14-15, 1974	Winter Meeting of the South Carolina Medical Association.
January 6-7, 1975	Seminar of the Department of Anatomy, Dr. C. P. Leblond of McGill University, Montreal, Visiting Speaker.
January 16-17, 1975	Seminar of the Department of Physical Medicine, Dr. J. V. Basmajian of Emory University, Visiting Speaker.

MEDICAL UNIVERSITY

January 23-24, 1975	Seminar of the Department of Clinical Pathology.
February 10-11, 1975	Seminar of the Department of Anesthesiology.
February 20-21, 1975	Seminar of the Department of Biochemistry, Dr. Sidney Udenfriend of the Roche Institute of Molecular Biology, Visiting Speaker.
February 27-28, 1975	Seminar of the Department of Biometry.
March 2-4, 1975	Dixie Conference of the American College Public Relations Association.
March 3-4, 1975	Seminar of the Department of Medicine I.
March 13-14, 1975	Seminar of the Department of Medicine II.
March 15-16, 1975	Meeting of the Piedmont Proctologic Society.
March 21, 1975	Seminar of the Department of Pharmacology.
March 27-29, 1975	Meeting of the South Carolina Academy of Sciences.
March 28-30, 1975	Meeting of the Southeastern Chapter of the Biological Photographic Association.
April 3-4, 1975	Seminar of the Department of Surgery, John H. Davis, M.D. of the University of Vermont, Visiting Speaker.
April 10-11, 1975	Annual Residents Conference on Ophthalmology, Paul Henkind, M.D., Ph.D. of the Montefiore Hospital and Medical Center, Bronx, N. Y., Herbert E. Kaufman, M.D. of the University of Florida, and Dan B. Jones, M.D. of Baylor College of Medicine, Houston, Visiting Speakers.
April 17-18, 1975	Seminar of the Department of Pathology, Thomas M. Peery, M.D. of George Washington University, Visiting Speaker.
April 20-22, 1975	Meeting of the Whipple Society and the Society of Surgical Chairmen.
April 21-25, 1975	The American College of Physicians' Postgraduate Session, Pulmonary Disease Course.
April 24-25, 1975	Seminar of the Department of Obstetrics and Gynecology, Allan C. Barnes, M.D. of the Rockefeller Foundation, New York, Visiting Speaker.
May 8-9, 1975	Seminar of the Department of Pediatrics.
May 9-10, 1975	Future of Medicine.
May 29-30, 1975	Seminar of the Division of Thoracic Surgery, Denton A. Cooley, M.D. of Houston, Visiting Speaker.

The activities of the Medical University today are numerous and diversified. The following brief accounts of the various major departments will give a view of the extensive interests of the faculty.

ANATOMY

W. CURTIS WORTHINGTON, JR., M.D.

The history of the Department of Anatomy of the Medical University is coextensive with that of the institution itself. The first Professor of Anatomy, John Edwards Holbrook, was appointed at the time of the establishment of the school in 1824 and held the position until the end of the Civil War in 1865. During the war years when the school was closed, he served as a medical officer in the Confederate Army. He was Professor Emeritus until his death in 1871. The research tradition of the department can be said to have originated with Holbrook since he was an internationally renowned ichthyologist and herpetologist and was famous for his researches on North American species.

Following the reopening of the school in 1865, the chair in Anatomy was held for comparatively short periods by two people. The first, Francis T. Miles, appears in the bulletin of 1865. In the 1869-70 bulletin, Dr. Middleton Michel was listed as Professor of Anatomy and Physiology and in subsequent volumes is listed as Professor of Physiology only. It appears that he was holding the chair in Anatomy on an interim basis. The tenure of Dr. Francis LeJau Parker almost equalled that of Holbrook. Parker is listed in the bulletin for 1870-71 as Professor of Anatomy, a position which he held until at least 1905. He is listed subsequent to this as Professor Emeritus. Dr. Parker had an outstanding career as both teacher and dean.

In 1906, Dr. Louis D. Barbot, succeeded to the chair and apparently held it until 1912. The catalogs for 1912-1915 do not list a professor of anatomy but do list other staff members. It is of interest that it is in 1908 that one finds the name of Dr. W. C. O'Driscoll as Assistant Demonstrator of Anatomy. Dr. O'Driscoll had a brilliant subsequent teaching career moving from Assistant Demonstrator and Prosector to the Chair, to Instructor, Assistant Professor, Associate Professor and ultimately Professor of Anatomy. He also had a very long tenure and although he never served as chairman, held many posts of responsibility in the medical school and became a much beloved figure to generations of medical students. It is also of interest that in the same period Dr. H. W. deSaussure was listed as Demonstrator in Anatomy. Dr. deSaussure subsequently held important posts in the Department of Obstetrics and was quite active on the clinical teaching staff of the Department of Obstetrics and Gynecology as late as 1952.

In 1915, the name of W. F. R. Phillips appeared as Professor of Anatomy and it is, in general, at this time or a little before that the department appears to have had some full-time people on the staff in addition to the chairman. Dr. Phillips is still recalled by some faculty and former students for his imposing presence and strict academic requirements. Arthur T. Lassek succeeded Dr. Phillips in 1933. Dr. Lassek is remembered by many students for the crispness of his teaching and for his research on the central nervous system, particularly the fibers of the pyramidal tract. Upon the resignation of Dr. Lassek, Dr. Melvin H. Knisely was appointed Professor and Chairman in 1948, a post which he held until 1969 when the present chairman was appointed.

The dawn of Anatomy as a modern re-

search department which had had its beginnings during Dr. Lassek's tenure developed quite dramatically upon the succession of Dr. Knisely to the chair. During his 21 years as chairman, the department was vastly expanded to meet the needs of a modern medical curriculum. It became established nationally and internationally as a research department, not only through the research of Dr. Knisely and his personal associates, but also of many other members of the faculty, and most importantly, medical and graduate students who were attracted to work in the department.

In the past five years the number of faculty in the department has nearly doubled, the teaching has expanded and encompassed many new programs and the research orientation has been maintained and enhanced by many new and contemporary technical capabilities and research problems introduced into the department.

The Department of Anatomy is proud that it has a long tradition of service to the people of South Carolina and that its origins, including its orientation to research, had their roots in the very earliest history of the institution.

ANESTHESIOLOGY

JOHN H. MAHAFFEY, M.D.

In 1949 Dr. John Marian Brown was appointed to the College of Medicine Faculty as Assistant Professor of Surgery (Anesthesiology). He was the first anesthesiologist on the faculty. He established clinical anesthesia as a part of the medical curriculum. With excellence in patient care and the advancement of the art of anesthesia as primary goals, a resident training program was begun. In 1950 Dr. Emily M. Ferrara was accepted as the first resident in anesthesiology.

The teaching of anesthesia at the Medical College was expanded to also allow time with students in the basic science years. Anesthesia was also included as a part of the curriculum in the College of Nursing. In 1956 with the cooperation of Dr. Frederick Kredel, Professor and Chairman of the Department of Surgery, anesthesiology was established as a separate Department in the College of Medicine. Dr. John Brown was appointed Professor and Chairman of the Department.

The Department of Anesthesiology recognized the need to train paramedical personnel early in its development. Deficiencies in Respiratory Therapy led to the development of a certified school for training therapists in 1959. A Section of Respiratory Care and Respiratory Therapy has been developed to meet the intensive needs that exist in this area. This section, the first established within the Department, has Dr. Joseph S. Redding as Professor and Section Head. The curriculum of the certificate school has been expanded, and a respiratory therapy course leading to an associate degree is offered. There is potential for a program leading to a baccalaureate degree.

The program for Nurse Anesthetists was established in September of 1965. Beginning with the class entering in September, the program will consist of 24 months of training. Approximately ten nurses are accepted into this program annually, and a total of 45 have completed the prescribed course of training. The stress on excellence has made this one of the outstanding schools in the Country.

Research has been a vital part of the Department activities since its inception. The early efforts were primarily directed toward an understanding of the cardiovascular effects of anesthesia and was a

coordinated effort with the Department of Pharmacology. Much of the early work contributed significantly to the existing knowledge and is considered classical. Research remains a vital and expanding Departmental endeavor. It is anticipated that future efforts will become more interdisciplinary, especially in the area of clinical research.

Thirty-five physicians have been trained in the Department since 1950. Of this number, nineteen are now practicing in the State and 29 in the South. There continues to be an ever growing need for capable, competent, and knowledgeable physicians in the specialty of anesthesiology. The Department has a well established four year post graduate program devoted to this effort. In recent years the faculty has been expanded to provide the essential diversification and scope required.

BIOCHEMISTRY

BILLY BAGGETT, Ph.D.

In early 1969, the Department of Chemistry had eight faculty members. They taught biochemistry to medical, dental and pharmacy students. They taught courses in analytical and organic chemistry also. In addition, they operated a busy and important clinical laboratory—the Special Chemistry Laboratory. Although it is hard to see how there was time, they also had research projects and contributed to the body of scientific knowledge.

In the summer of 1969, Dr. J. D. Aull, the recognized epitome of teacher and scholar, retired and became Professor Emeritus of Chemistry. Even in so-called retirement, Dr. Aull continues to be a full member of this department and continues to teach, to the benefit and enjoyment of our current students.

In 1969 Dr. B. Baggett joined the department as Chairman, having come from the University of North Carolina at Chapel Hill.

There has been a rather steady influx of new faculty members, and at the present time there are 21 full-time members of the Department. In addition to the full-time faculty, there are a number of faculty members with dual appointments in other departments of the Medical University.

In recognition of the change in overall teaching responsibilities, the name of the Department was changed in 1970 from Chemistry to Biochemistry. The teaching responsibilities in biochemistry include courses for students in the colleges of Medicine, Dental Medicine, Pharmacy, Graduate Studies and Nursing.

The graduate program in particular has grown markedly, and there are now over 20 graduate students working toward degrees in the Department, about half toward M.S. degrees, the others toward Ph.D. degrees. The Department is developing self-instructional programs of various types and is working toward the development of a complete, self-instructional introductory biochemistry course. Efforts in this direction are being supported by a generous grant from the National Fund for Medical Education.

Financial support for research at present includes seven grants from the National Institutes of Health, one grant from the Sea Grant Program of the National Science Foundation and several from other sources. The research programs in the Department range from very basic ones to those that bear directly on the maladies of man. Major areas of very basic research include investigations of the interactions of radiant energy with matter, studies on protein structure, studies on the mechanisms and rates of enzymatic reactions and studies on gene replication.

Although in 1970, the Special Chemistry Laboratory was transferred to another department, leaving the department with no formal service function, some faculty members continue to maintain a strong interest in clinical biochemistry and the teaching and research programs reflect this interest.

Over the past few years there has been an extremely active seminar program, bringing about thirty outstanding scientists to the department each year. Each visitor has presented a research seminar, and has had informal discussions with faculty members and students. This program has contributed greatly to the intellectual environment and has, in addition, helped to publicize development of the department and university.

BIOMETRY

ROBERT L. MASON, Ph.D. and M. CLINTON MILLER, III, Ph. D.

Biometry was established as a University Department in July, 1969, under the chairmanship of M. Clinton Miller, III, Ph.D. This was the direct result of faculty recommendations based upon adverse experiences of having to go outside to obtain the aid of biostatisticians and computer experts at various institutions.

The purpose of the Department was to establish an academic program in Biometry, to develop independent research in the discipline and to support and collaborate with members of other departments and the medical community at large in their research and health service programs. It was envisioned that these services would be available to all elements of the University but with time the Department was relocated organizationally within the College of Medicine. Biometry at MUSC has since developed into a multidisciplinary field of study consisting of biostatistics, biomathematics, operations research, biophysics, biomedical computing, and bioengineering.

The faculty now includes eight full-time appointees and six joint appointees. Of the six joint appointments, four are interdepartmental with Biochemistry, the Area Health Education Center, the College of Allied Health Sciences, and the Department of ENT; two are inter-institutional appointments, one each with the Citadel and the Baptist College.

The Department has been equally progressive in expanding its computer facilities. These facilities include several electronic calculator systems with plotters and multiple terminals and a Digital Equipment Corporation PDP-8E computer system for student instruction and research. The Department also is installing a remote terminal which will provide direct access to the Medical University Computer Center IBM 370/145 computer. This system is a 14 disk drive dual printer and card reader system with 512K of memory. In addition, numerous computer statistical packages are available ranging from the UCLA Biomedical Programs to departmental developed programs serving individual users.

Finally the Department maintains a comprehensive library in the general area of biometry, its collection bolstered by subscriptions to some 90 pertinent journals.

Through the new curriculum, the College of Medicine allows medical students to select electives offered by the Biometry Department.

A new dimension has also been added to the educational opportunities within the College of Graduate Studies through the Master of Science Degree Program in Biometry. Through the interchange of gradu-

ate students in classrooms and seminars and by faculty collaboration in research programs, ideas are freely exchanged concerning conceptual and real contributions of biometry to the basic and clinical health sciences. Of interest to these students is special instruction in mathematical models and the design and analysis of experiments.

Among the ongoing programs are: an evaluation of the impact of the MEDEX program on the health care delivery system in South Carolina; a study of the Baccalaureate Nursing Program at MUSC; a pilot study investigating patient flow queueing problems and a work analysis of the pediatric outpatient department; planning and implementation of computerized systems in appropriate clinical departments; design, implementation and evaluation of an acid-base diagnostic system for the Department of Medicine; and creation of a medical information system to collect and analyze information about spinal cord injury patients during the rehabilitation process.

CLINICAL PATHOLOGY

DANIEL W. ELLIS, M.D.

The Department of Clinical Pathology found its beginnings in the late teens and early 1920's when Dr. Francis B. Johnson became Professor of Clinical Pathology at the Medical College.

Teaching activities have expanded in many aspects. In addition to the "core" course, electives are offered in five areas of interest. Resident physicians in Clinical Pathology constitute an important phase of the academic training and research activity.

A corollary to the active clinical laboratory is the training of technical personnel. Expansion of the Medical Technology and Medical Laboratory Technician Programs has kept pace with the overall growth of the department and the institution. Classes in these disciplines now number over forty students per year, and present plans envision even further expansion in an attempt to keep abreast of the increasing number of physicians and enlarging hospital facilities. The Medical Technology Program was begun in 1927 and was among the first in the nation. The Medical Laboratory Technician Program was the first such program to receive full accreditation by the Council on Education. The present programs are incorporated under the aegis of the College of Allied Health Sciences and includes six full time instructors as well as the departmental personnel.

The value, scope and astounding growth of laboratory medicine is evidenced by the fact that in 1919 the total number of laboratory examinations done in the department was 9,939. Ten years later, in 1930, the annual figures are quite different. The total number of tests done had then increased to 43,139. In 1973 the number was 1,500,000.

Qualitative changes have kept pace with the totals. From humble beginnings the number of tests now available has risen to over 400.

An integral part of the profound changes which have been witnessed has been the advent of automation and its application to the clinical laboratory. Capital investment in apparatus has made for a profound change in the magnitude of such expenditure.

In order to process the vast volume of data, which now exceeds 1.5 million results per year, computer equipment was installed about five years ago. This laboratory was among the first in the nation to take this step, and the staff did pioneer

work in setting up programming specifications pertinent to medical laboratory data. The total number of employees, clerical and technical, now approaches 200 as compared with the known figure of five in 1939.

A department, which by the very nature of its professional duties is dedicated to the clinical service, must perforce concentrate upon patient care with some sacrifice to research activity. However, the department does have two research grants in the amount of $125,000 and also devotes considerable time and effort to development and evaluation of new methods and in the maintenance of quality control systems in all areas.

Of interest is the fact that the department serves as a reference laboratory in coagulation for the H.E.W. and in the Safety Programs concerning alcohol and drug abuse for the U.S. Department of Transportation, the State of Pennsylvania and the State of South Carolina.

Plans for the future envision further expansion of the professional staff which has now grown to seven and includes those with special interests in highly specialized fields within the general sphere of Clinical Pathology. Likewise the technical staff will grow consonant with the ever expanding growth of services.

Architects are now planning a new laboratory building which will stand in proximity to the hospital and Clinical Sciences buildings. It is anticipated that the new facilities will promote even greater expansion and growth in teaching, research and service to the medical profession in caring for the health needs of the people of South Carolina.

FAMILY PRACTICE

HIRAM B. CURRY, M.D.

In 1969, the leadership of our Medical University made the decision that this state-supported institution had an obligation not only to train more doctors but also the types of doctors that South Carolina needs. A new type of program would be needed to train a modern generalist, the Family Physician. A plan was formulated which provides student training in the undergraduate years as well as a three-year residency training program, together constituting a major department in the College of Medicine.

On February 4, 1970, the Dean directed that the department be initiated. The first Family Practice Department offices and the Family Practice Unit were developed in a small facility of 1,700 square feet. In our third year, the Medical University purchased the Riverside Nursing Home to house this department. On July 1, 1970, the training program began with three residents. These residents, three faculty members and two secretaries accounted for the entire department. Collectively, the three faculty members had about 45 years of experience as family doctors in small towns. Their goal has been to train a physician having the ideal mix of craftsman and artist, just the right blend of scientist and humanist.

Patients were recruited from the Medical University Clinic and the community. The Problem Oriented Medical Record (POMR) was adopted as ideal for this specialty. The residents not only worked in the model Family Practice Unit, but they also rotated through the services of the hospitals and clinics of the Medical University campus.

In September of 1970 the first electives for students were offered, providing students the opportunity to see health in a larger frame than they had previously experienced, helping the student to realize that the disease of an organ not only

caused the patient to be ill but also affected the health of the entire family. A minister was appointed to our faculty to provoke reflective thought among our students and for consultation regarding medical decisions which involve ethical issues. The importance of the Behavioral Sciences in Family Practice was appreciated early and teachers interested in this area have been recruited.

The POMR was made computer-compatible and its great potential recognized. A grant for federal funding was successful and computer terminals were installed, which is proving that patient data can be managed by a computer with greater accuracy and dependability than by the traditional written paper system. Residents have the opportunity to manage their patient data via the department's large computer.

The College of Pharmacy has provided a complete pharmacy in the Family Practice Center in order to train their senior pharmacy students to be health professionals, able to provide the physician with expert pharmaceutical information and to function as a professional colleague.

Television camera and video-taping equipment have been acquired to permit residents to see themselves at work and thereby to improve their performance. The first physician's assistants program on campus, a MEDEX Program, was initiated in 1972. Ex-military corpmen with medical and health-related experience are recruited to be trained to extend the services of family doctors.

In the fourth year the number of residents increased to 36. A full-time evaluator joined the faculty to test the success of our teaching program and to measure the growth of the residents. An epidemiologist has joined the department to study the number and types of complaints and diseases which are brought to the attention of the family doctor. This is also the first step in developing the community medicine component of Family Practice. The department is just beginning to address the subject of patient education to teach the patient about his or her disease. A course in Business Management is being organized for our residents.

The department realizes its responsibility to explore and develop the intellectual content of Family Practice. Families must be studied; we must learn to understand family relationships as very important determinants of health. In the future the family doctor must be able to interpret and deal with intrafamily relationships if he is to be effective in solving certain family problems and psychosomatic illnesses.

What does the future hold for Family Practice in Charleston? Four years of very rapid growth has produced one of the largest programs in the world. The faculty of the Department of Family Practice has grown from 3 to 17, students taking electives from 15 to about 200, and residents from 3 to 41. This department is referred to as a model by many other programs and by the American Board of Family Physicians. There is good reason to believe the citizens of South Carolina will have well-trained family physicians to meet their primary health and medical needs in the future.

THE STATEWIDE FAMILY PRACTICE RESIDENCY SYSTEM

We were electrified in February, 1973, when Governor John West announced that improvement in health care for the citizens of South Carolina was the most important objective of his administration. His State-of-the-State Address pointed out the shortage of physicians in general and stressed the great shortage in family physicians. He stated he wished a Family Practice Residency Program to develop in each of the large hospitals in the State.

A committee, charged to study the health care delivery status of our State, determined that at least 66 family doctors

should be trained per year. To accomplish this goal, three programs, already operational, were to be enlarged and improved, and five additional hospitals were to develop high quality Family Practice Residency Programs.

The SFPRS provides 100 per cent of the funds for alterations, renovation and construction of an adequate facility to house the Family Practice Residency Program at each of the hospitals. It also provides for 60 per cent of the cost of the teaching program. The sponsoring hospital has responsibility for the remaining 40 per cent.

At the present time, the Greenville, Spartanburg, and Charleston programs are reaching their maximal projected size. Directors have been appointed for the Anderson and Columbia programs. A search is underway to select a director for the Greenwood and Florence programs. The site of the eighth program has not been determined.

As we endeavor to meet the family physician needs of South Carolina, we are challenged to build a state model of affiliated Family Practice Residency Programs. Collectively the hospitals referred to above have an enormous educational potential residing in their large institutions which are well equipped and staffed by highly competent physicians. If communities are to have ample numbers of family physicians in the future, they must participate in their education.

The availability of a large number of Family Practice training positions in South Carolina will encourage our own graduates to remain in South Carolina as well as attract many young physicians from other states. Several studies strongly indicate a young physician is likely to practice near the location of his residency. The establishment of training programs in eight areas of the State should improve the geographic distribution of physicians in South Carolina.

MEDICINE

JOSEPH C. ROSS, M.D.

The presence, over much of the last quarter of a century, of distinguished educators and stimulating teachers in the department such as Dr. John Boone, Dr. Vince Moseley and Dr. Kelly McKee enriched the lives and broadened the educational sphere of hundreds of medical students; many of whom are among the cadre of physicians in South Carolina today.

These dedicated men, along with a few who preceded them, some who were their contemporaries and many others who followed them, provided the foundation on which a large, strong, viable Department of Medicine could be built. We are, now, moving toward that goal.

During the past 50 years, the Department has been headed by only the five following chairmen: 1925-1944 Dr. Robert Wilson, Jr., 1944-1949 Dr. William H. Kelly, 1949-1967 Dr. John A. Boone, 1967-1970 Dr. Kelly T. McKee, (Interim), 1970-present Dr. Joseph C. Ross.

The Department accounts for about 27% of a student's educational exposure time during his four years in medical school. This Department is now the largest Department in the College of Medicine but, until recent years, it was not and the number of faculty members was relatively small; much too small for even the number of students per class before 1971, when that number was doubled. Nevertheless, the expanded facilities provided by the opening of the new University Hospital in the late 1950's and the addition of the Charleston County Hospital and the new VA Hospital during the 1960's, promoted growth in the size of the full-time

faculty.

Since 1970, many changes have taken place in the Department in relation to faculty number, educational and research activities, curriculum, numbers of students, state-wide programs, financial support, organizational structure and administration. All of these changes, we believe, have contributed to making the Department of Medicine better prepared and more able to cope with our academic responsibilities.

The Department now has 50 full-time faculty members (12 geographic full-time and 38 strict full-time) in Charleston. At least 4 new appointments will be made on or before July 1, 1974. We have, in addition, 7 full-time faculty members in Consortium hospitals in Columbia, Greenville and Spartanburg. There are 63 members of the part-time clinical faculty in Charleston, Columbia, Greenville and Spartanburg.

With the number of students in each class now above 160 and with increasing faculty time being consumed by clinical electives offered during the third and fourth years, we are moving to rapidly increase the size of the faculty in the Department of Medicine. We plan to have a minimum of 80 full-time faculty members in the Department no later than 1978-79, but sooner, if possible. The Department of Medicine relates primarily to students in the 3rd and 4th years of the College of Medicine curriculum, but faculty members also participate in many courses given in the first 2 years of the curriculum. We estimate that the faculty has teaching responsibility for a total of over 150 medical students at any one time. Our present faculty-student ratio, on that basis, is 1:3. About 80 full-time faculty members in the Department will give us a faculty-student ratio of about 1:2, a much more realistic and desirable ratio.

In the Department, we now have 13 Divisions and Sections. Expansion is planned by enlargement of these Divisions and Sections and by the additions of Divisions of Oncology, Immunology, Ambulatory Medicine and General Medicine.

Our teaching program is primary. It encompasses graduate (medical students), postgraduate (interns and residents) and continuing education responsibilities. The program in this area includes: a. Physical Diagnosis, b. Core Curriculum Clinical Clerkship, c. Systems Courses, d. Clinical Electives.

The Department of Medicine has an approved program for training in preparation for certification by the American Board of Internal Medicine. We now have 30 interns on the medicine service at all times. Twenty-four are straight medicine interns; the other six are from other Departments. The Department has 25 approved straight medicine internship positions and also provides four months training to all first-year residents in Family Practice and to some in Neurology, Physical Medicine, Psychiatry and Pathology. The medicine interns are assigned to wards in the four teaching hospitals: Charleston County Hospital, VA Hospital, Medical University Hospital and St. Francis Hospital. We have approximately 300 medicine teaching beds in these four hospitals.

There are, at present, 42 medicine residents. These include first, second and third year residents in internal medicine and some residents in a year of subspecialty training. First year residents spend about 10 months of the year on ward rotations where they have the supervision of 2 interns, 3-4 third year medical students, and 20-30 patients. Second and third year residents are, primarily, assigned to subspecialty rotations. During this period of time they act as consultants to the ward residents under the supervision of faculty members in the various subspecialties.

Faculty members in Medicine participate in postgraduate courses and refresher courses offered by the Division of Continuing Education. Several courses, during the period of an academic year,

are offered and supervised by members of the Medicine faculty.

We now have ongoing research related to a number of fields. There are 25 full-time faculty members involved in research projects. The research is supported by about $1.1 million in sponsored funds from NIH grants, VA Research Funds, Institution funds, and other sources. Several new applications have been submitted and others are in various phases of planning. Members of the Department of Medicine faculty published 85 papers last year, not including many abstracts. Several talks were given at national meetings. Four members of the faculty in Medicine are members of NIH research and training committees and two are members of VA Central Office research and training committees.

The Department of Medicine is strongly committed to excellence in clinical medicine. Patients are referred from throughout the state and adjoining states while many come from the local community.

We are now responsible for approximately 160 beds at the VA Hospital, 60 beds at Charleston County Hospital and 75 beds at Medical University Hospital. In addition, we see about 100 patients daily in our General Medicine and Medicine Subspecialty Clinics and participate in the handling of 100-200 patients daily in the Charleston County Hospital Emergency Room.

The affiliations with hospitals in the teaching consortium will provide us with a greater variety of electives for our students and give us the expansion in beds, available for teaching, which will be required by the larger classes and senior elective program. This program, however, will also require additional full-time faculty members in the affiliated hospitals.

The superstructure of the new Clinical Sciences Building looms large on the horizon, however. This is the first in a series of buildings planned and desperately needed. As we see the Clinical Sciences Building become a reality and as we await the others in anxious anticipation, we are continuing to plan for the future; in mind, we have the development of a large strong Department of Medicine, as part of a great medical center, accomplishing its ultimate goal of meeting the needs of South Carolina in the training of physicians and medical scientists.

MICROBIOLOGY

BEN H. BOLTJES, M.D.

The department of microbiology had its inception in 1893 with the appointment of Dr. Robert Wilson as instructor in bacteriology and histology. Frederick Novy had just returned from Koch's laboratory in Berlin and was setting up the first department of bacteriology at the University of Michigan. The exciting news about bacterial methodology was getting around to the medical centers in the United States. Wilson, who taught himself bacteriology, was the city of Charleston's first bacteriologist and in the 1893 bulletin of the college described his section as having "all the facilities necessary for cultivation of various bacteria and esseminutation (sic) in animals." Dr. Wilson ultimately became chairman in the department of medicine and was succeeded in 1901 by Dr. G. McFarlane Mood, who began a career as bacteriologist and later chairman that was to last for 50 years. Dr. Mood was a morphologist with a great interest in stains. He devised the Mood stain for *C. diphtheriae* which intensified metachromasia in this organism. The stain is still widely used. Dr. Mood was intensely interested in the use of autogenous vaccines and was an inventor by avocation designing several laboratory

tools one of which was the spring clip slide holder still used to avoid staining of the hand.

Dr. Mood was succeeded in 1950 by Dr. Ben H. Boltjes, a physician who obtained his Ph.D. under Stuart Mudd at the University of Pennsylvania. Boltjes' graduate work had to do with the role of a lymphocyte factor known today as MIF which affected the killing of the tuberculosis organism by macrophages. Because of this background, Boltjes saw the need to broaden the spectrum of interest and instruction and created the department of microbiology. A mycologist, virologist and immunologist were added. Boltjes was soon joined by Dr. Lolita Pannell who guided the research in the department and who maintained NIH and other research grants for 17 consecutive years. In the mid-sixties increased student enrollment in the several colleges called for more attention to teaching needs. Half the staff of the department was sent on successive summers to the University of Rochester to obtain training in autotutorial methods and program instruction. Many innovations in teaching instruction occurred. Lattices which permitted excellent note-taking were contrived for each lecture. A peer review system in which good students shared learning techniques with their colleagues was instituted. A positive statement review manual was compiled. Program instruction was emphasized. The new result was that the department reached the first quintile of performance on National Board Examinations and has maintained a high performance record ever since.

Service responsibility, always heavy in the department, was expanded. In the 1960s, various subsections were added. Mycology, Virology, Clinical Bacteriology and Clinical Immunology handled all of the service work in these areas in Charleston County.

Research in microbiology, particularly in the areas of mycology and immunology, has expanded in the last few years. The numerous publications and textbooks written by Dr. Charles D. Graber and Dr. Thomas A. Mahvi have given the department its share of worthy contributions to research in these fields. Dr. Graber has recently been cited as the outstanding microbiologist in the state of South Carolina.

In the last year a decision was made to subdivide the department into a department of Clinical Microbiology with a strong service responsibility and a department of microbiology and immunology with emphasis on research and teaching. This division will be implemented shortly.

NEUROLOGY

EDWARD L. HOGAN, M.D. and O. RHETT TALBERT, M.D.

The Sesquicentennial of the Medical University of South Carolina occurs at a transition time for the Department of Neurology. Dr. O. Rhett Talbert decided in 1971 to step down as chairman in order to devote himself to clinical practice albeit with a continued major participation in the clinical teaching program. This marked the end of the initial phase of development of modern clinical neurology at the institution begun in 1954 when he was appointed the first clinical neurologist on the faculty. During the ensuing 17 years, the faculty steadily enlarged, encompassing skillful clinicians and teachers and the neurology residency program became established. The program attracted capable and dedicated neurologists, many of whom continue to practice in South Carolina thereby enriching the medical re-

sources of the state. During the past year dramatic changes have been initiated within the department, particularly with the advent of the Laboratory of Neurochemistry.

Samuel Henry Dickson, M.D., Professor of Institutes and Practice of Physic, was among the founders of the Medical College of South Carolina in Charleston in 1824. His textbook, *Elements of Medicine*, contains a section of 49 pages devoted to neurological diseases. An eloquent speaker and writer, he was remembered for his lecture and treatise on the hazardous "mania a potu" or delirium tremens. These recounted in detail the consequences of imbibing "arduous spirits." Dr. William Markley Lee, an 1826 graduate who practiced in the hamlet of Indiantown in Williamsburg, South Carolina, anticipated a current field with his interest in acupuncture. In an article on "Acupuncture as a Remedy for Rheumatism," published in August 1836, Dr. Lee described several patients who benefited. These included a man with torticollis who was permanently relieved 15 minutes after treatment.

In 1881, Dr. Francis L. Parker, anatomist and surgeon at the Medical College, published one of the earliest reports of nerve suture. His patient attained complete recovery of motor function after re-anastomosis of the posterior interosseous nerve.

No organized teaching of the subject of neurology was recorded prior to the appointment in 1937 of Dr. Frederick Kredel, the first full-time Professor of Surgery. His stimulating lectures on clinical aspects of neurologic disorder were enlivened by patient demonstrations. During the same period, Dr. Douglas Remsen of the Department of Medicine, earned the students' soubriquet "Remsen's Hour of Charm" for his enthralling manner. Dr. Olin Chamberlain, an internist by training, assumed the major role in clinical neurology in 1946. His significant impact was lost to the school after only a few years when he suffered a subarachnoid hemorrhage in 1952.

The discipline of neuroanatomy was taught and extended by thorough and significant research during the years 1940-48 while Dr. Arthur Lassek was Professor of Anatomy. Important contributions in neuroanatomy were made during this same period by Drs. Grant T. Rasmussen and Chester Swinyard. In 1952, Dr. Isabel Lockard assumed responsibility for the teaching of neuroanatomy. Her lucid lectures and emphasis upon clinical correlation continue to challenge and fascinate students, house officers, and faculty alike.

The organization of a complete program in neurology at the Medical College began in 1954. Dr. O. Rhett Talbert, a graduate of the Medical College, assumed direction of the Division of Neurology within the Department of Medicine which included responsibility for 12 beds, the EEG Laboratory, and the outpatient clinic. A neurology faculty of seven full-time members was assembled. In 1957, a residency training program was begun under the auspices of the National Institute of Neurological Diseases and Blindness, then directed by Dr. Pearce Bailey (a 1961 graduate), and has warranted continuing support. Dr. Gilbert Young has developed a program of residency training in child neurology. Dr. J. Neil Marshall directed the EEG Laboratory for a decade and is now supported by Dr. Suresh C. Soni. A model course of interdisciplinary instruction in neuroscience and clinical neurology was introduced in 1969 and has been very effective. A special expertise was provided by the addition of a clinical neuropsychologist, Dr. Sidney Denman, in 1970. He is experienced in the examination of cerebral cortical function and is developing new and improved methods for this purpose.

In 1970, the Division of Neurology became a department of the College of Medicine.

Dr. Edward L. Hogan succeeded to the chairmanship in August, 1973. A new dimension is afforded by the faculty appointment in January, 1974, of Dr. Braxton Wannamaker, who has a special inter-

est in epilepsy.

The main thrust of the Neurochemistry Laboratory centers upon the study of the membranes of the nervous system. Dr. Hogan is particularly interested in the molecular composition and metabolism of the myelin membrane examining abnormalities in such disorders as multiple sclerosis and genetic disorders of myelination. Dr. Steven Brostoff, who has joined the staff as Associate Professor of Neurology and Biochemistry, has an interest in the biochemistry of macromolecules.

This transition in the Department of Neurology from a solid program in clinical neurology to one with a widened range of interests and obligations is in keeping with that in the Medical University and indeed in medicine itself.

OBSTETRICS AND GYNECOLOGY

LAWRENCE L. HESTER, JR., M.D.

The Department of Obstetrics and Gynecology is quite proud of its heritage. J. Marion Sims, M.D., the father of modern gynecology matriculated at the Medical College of the State of South Carolina for the three-months course of lectures during the winter of 1833-34, proceeding to Jefferson Medical College to earn his medical degree in the spring of 1835.

Another famous gynecologist, T. Gaillard Thomas was born on Edisto Island in 1831, graduated from the Medical College of the State of South Carolina in 1852, following which he received postgraduate training in New York City. Later he became a friend and medical colleague of J. Marion Sims. He was an excellent lecturer, teacher, and gynecologist. His textbook, *A Practical Treatise on Diseases of Women*, was an outstanding gynecological text with six editions and was translated into 13 foreign languages. T. Gaillard Thomas, Sims, Peaslee and Emmett were the founders of Women's Hospital in New York City, which was the first hospital organized and later constructed for the admission and treatment of diseases of women. Its fame spread throughout the world with the result that its four founders became famous and established gynecology as a distinct and unique specialty.

In the 1930's and 1940's, Dr. Lester Wilson was Chairman of the Department of Obstetrics and Gynecology, with gynecology being under the personal direction of Dr. Francis G. Cain. The modern history of the Department begins with the opening of the Medical University Hospital in 1955. The following year the author was appointed Professor and Chairman of the Department, and has seen it develop during the past 18 years into an outstanding department providing excellence in teaching, research, and patient care.

With the vast expansion of medical knowledge, the Department has been divided into three sections: Section of Gynecologic Oncology—Director, Paul B. Underwood, Jr., M.D.; Section on Fetal and Maternal Medicine—Director, Edgar O. Horger, III, M.D.; Section on Reproductive Endocrinology and Infertility—Co-Directors, H. Oliver Williamson, M.D. and Michael E. Yannone, M.D.

In addition, the Department has well-established programs of interest in family planning, sex counseling and psychosomatic gynecology.

The residency program is well-recognized throughout the United States as providing excellent training in obstetrics and gynecology and all of its subspecialties. At the present time the program is approved for four residents at each level for a total of 16 residents. The residency training program is designed to provide well-balanced training and to insure that upon completion of four years of training

the residents will be skilled in gynecologic surgery, normal and abnormal obstetrics, and will acquire certain skills with the cryosurgical unit, laparoscope, colposcope, and the ultrasound unit.

To further excellence in obstetric health care, a nurse midwifery program was begun in 1973 as a conjoint effort of the Department and the College of Nursing. The service program is already quite active, being staffed with six nursemidwives. It is contemplated that an academic program in nurse midwifery will begin January 1, 1975. The nurse midwife is a valuable member of the Perinatal Health Team, saving the obstetrician-gynecologist time to spend on abnormal and complicated obstetrical cases.

The Department is vitally concerned with the delivery of excellent obstetric and gynecologic health care without increasing health costs. Thus, in addition to the nurse midwifery program, the Department is using and evaluating colposcopy, cryosurgery, and endometrial jet washings. Ultrasonography is also being used. This valuable instrument should decrease markedly the use of diagnostic roentgenography in obstetrics. The Department of Obstetrics and Gynecology has a rich heritage, a glamourous past, but a more exciting future.

OPHTHALMOLOGY

WILLIAM H. COLES, M.D.

The Department of Ophthalmology, under the direction of William Wise Vallotton, is now in the process of developing the only Eye Institute on the East Coast between Baltimore and Miami.

The new five-story Albert Florens Storm Memorial Eye Institute, to be completed next year, will be used by ophthalmologists around the state as well as those associated with the Medical University.

Rapidly moving ahead in staffing, the Department has nine residents, three full-time staff members, 18 clinical professors, 3 research professors, and plans are completed to develop a fellowship program when space and patient load permit. Two more full-time faculty members will be added when the Eye Institute is completed.

Our Chief Orthoptist, Miss Judy Pryor, who is also past secretary for the American Association of Certified Orthoptists, is not only Director of the Orthoptic Department but also is training one orthoptist every two years.

The request for a school for Ophthalmic Assistants has been approved. This school will provide qualified and well trained ophthalmic technicians for ophthalmologists throughout the Southeast.

Our new Director of Ophthalmic Research, Professor Regina Frayser, has continued to give guidance to the Ophthalmic Research Program now under way.

Recently our clinical research has been expanded from the efforts of full-time staff member, Assistant Professor Jerre K. Chambers. He has taken charge of the fluorescein angiography section of the department and he is now doing clinical as well as experimental angiography.

The corneal research laboratory is engrossed in the study of toxic effects of drugs on the corneal endothelium.

The laser beam has become invaluable in retinal therapy. Two lasers are in use, the Ruby and the Argon.

Phacoemulsification is a newly perfected method of removing cataracts, especially in younger individuals. A unit is at the Medical University now where specially trained physicians are using it on a limited basis on carefully selected patients.

Dr. Clark Donley has provided the technical ability to develop an electrophysiol-

ogy unit for clinical patients. In this clinic electroretinograms and electrooculograms have added to diagnostic techniques.

B-scan ultrasound has also added valuable assistance in evaluation of patients with opaque corneas or clouded lenses or vitreous. This technique allows better choice of operations for patients as well as allowing more accurate assessment of prognosis.

Our annual residents conference is now considered one of the best in the Southeast. This year's program was skillfully organized by Clinical Associate Professor, Hunter Stokes.

ORTHOPAEDICS

JOHN ARTHUR SIEGLING, M.D.

The Orthopaedic Department at the Medical University Hospital has developed greatly in recent years. The department was founded by Dr. William Henry Johnson, and the residency was established by Dr. F. Adelbert Hoshall. Chaired for the past 32 years by Dr. John A. Siegling, it has trained and graduated 36 residents. Many of these are serving South Carolina, with practices in Rock Hill, Spartanburg, Greenwood, Greenville, Columbia and Charleston. The residents have an enviable record of passing the examination of the American Board of Orthopaedic Surgery.

The residency program was initiated in 1937 with a single resident, and had developed to a training program of four men prior to the opening of the Veterans Administration Hospital. At that time it was augmented to eight men. In 1975 it is planned to have 12 men in training concurrently. The areas of training now include the Medical University Hospital, Charleston County Hospital, Roper Hospital, U.S. Naval Hospital, Veterans Administration Hospital, all in Charleston, and the Shrine Hospital for Crippled Children in Greenville.

From a faculty of one man in 1937, the department has developed to the point where there are now 19 men involved in the teaching of medical students and residents.

In 1967 Dr. Edward L. Hay, who had trained in the Orthopaedic Program, was encouraged to take a special period of training in hand surgery. On his return to the Clinical Faculty, the Division of Hand Surgery was added to the Department of Orthopaedics.

The program of hip replacement was initiated in 1971, after the visit of the Chairman to Mr. Charnley's Hip Center in England. Since then it has come to be a frequently utilized rehabilitative procedure at the University. Dr. Dowse D. Rustin, upon completion of his training in June, 1974, will take several months of special training in total hip and knee replacement in California, and upon his return to the Clinical Faculty will augment the departmental skills in these areas.

A new dimension was added to the training program in Orthopaedics in 1970 in the form of a gift of $50,000 from Mr. Harry Guggenheim. Another fund was established in 1974 by William and Bettina Gahagan in the amount of $10,000. These gifts by grateful patients make it possible for the residents to receive special education. The Chief Residents each year are funded for travel to some foreign clinic to augment their training in any special sphere of interest.

In 1974 the department was chosen as one of a number of hosts for the North American Travelling Fellows, a group of five outstanding residents in this country and Canada. These men are funded by the American Orthopaedic Association for

travel to special areas, based on their accomplishments.

It has been the aim of the department for many years to bring the residents into close personal contact with the faculty. To this end, each faculty member in rotation is host in his home for a monthly supper meeting. The residents in rotation present a paper at these meetings. In addition, an annual reunion of residents is held during the national meeting of the American Academy of Orthopaedic Surgeons.

Every effort is made to train capable, ethical orthopaedic surgeons and to provide competent and informed orthopaedic service for our area and the state.

OTORHINOLARYNGOLOGY

RICHARD W. HANCKEL, M.D.

Otolaryngology in Charleston first began its development under Dr. Edward Frost Parker and Dr. Walter Peyre Porcher in the 1890's and the early years of the 20th century. Many able and dedicated physicians carried, through dedication alone, the burdens of teaching and patient care at old Roper Hospital.

As the Medical University has developed and expanded, so has the Department of Otorhinolaryngology. In 1961 Dr. R. W. Hanckel was appointed the first geographic full time professor and chairman of the department. The residency program was approved in this year also and has increased from one attending and one resident in 1961 to three attendings and six residents at present. Included in the department are three audiologists, one speech pathologist, a division of basic science research, a temporal bone laboratory, and a division of electronystagmography.

The department is at present affiliated with the consortium group of hospitals throughout the state in the cities of Greenville, Spartanburg, and Columbia.

Expansion in the clinical area will see the addition of another geographical full time attending physician and the development of research efforts by the addition of a Ph.D. director of post-graduate education and research. Present offices will be moved to the new Clinical Science Building now under construction.

PEDIATRICS

MILTON C. WESTPHAL, JR., M.D.

For 30 years following his appointment in 1928, Dr. Mylnor Beach lead the Department of Pediatrics into the modern era. Dr. Beach presided over the care of sick children in the old Roper Hospital, designed the pediatric facilities that were built into the Medical College Hospital and, utilizing a woefully small budget, built a departmental reputation for excellence in patient care. Infectious disease was the major concern in the field of pediatrics during Dr. Beach's tenure and his diagnostic acumen and ability to manage acute and often devastating such disease was well known.

Dr. Beach's delightfully acerbic approach to teaching produced for South Carolina a generation of pediatricians who are continually alert to the details of management of their patients. His wit and fire produced stories of "Breakfast with Beach" which have become a part of the

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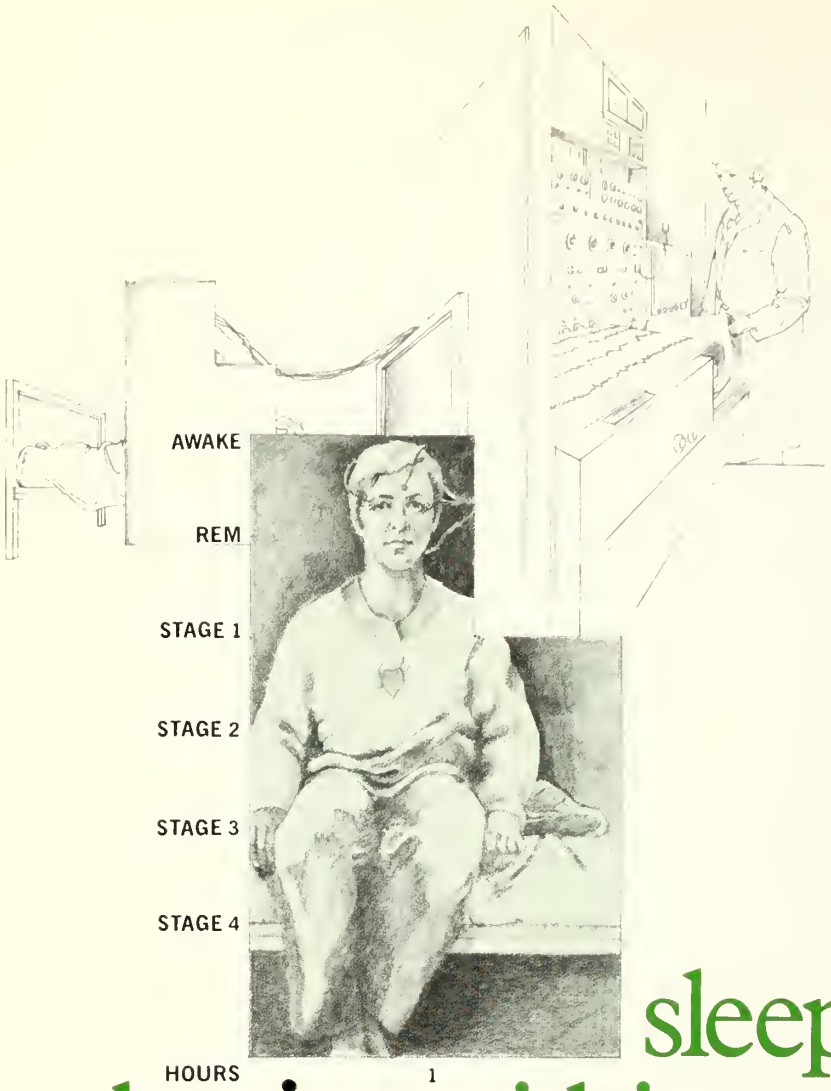
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confirmed by clinical studies in four geographically separated sleep research laboratories[2-5]

Using a 14-night protocol involving eight insomniac and eight normal subjects, four studies confirmed the sleep-inducing effectiveness of Dalmane (flurazepam HCl) and the reproducibility of this response. On average, one 30-mg capsule induced sleep within 17 minutes. In all these studies, Dalmane induced sleep rapidly, reduced nighttime awakenings, and provided 7 to 8 hours of sleep without repeating dosage[2-5]

Dalmane (flurazepam HCl) induces and maintains sleep, with relative safety

Dalmane is generally well tolerated; morning "hang-over" has been relatively infrequent. While dizziness, drowsiness, lightheadedness and the like have been noted most often, particularly in the elderly and debilitated, physicians should be aware of the possibility of more serious reactions, as noted below.

Before prescribing Dalmane (flurazepam HCl), please consult Complete Product Information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; and in acute or chronic medical situations requiring restful sleep. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended

Contraindications: Known hypersensitivity to flurazepam HCl.

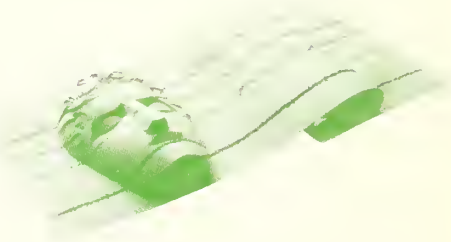
Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Use in women who are or may become pregnant only when potential benefits have been weighed against possible hazards. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated, initial dosage should be limited to 15 mg to preclude oversedation, dizziness and/or ataxia. If combined with other drugs having hypnotic or CNS-depressant effects, consider potential additive effects. Employ usual precautions in patients who are severely depressed, or with latent depression or suicidal tendencies. Periodic blood counts and liver and kidney function tests are advised during repeated therapy. Observe usual precautions in presence of impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported were headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins and alkaline phosphatase. Paradoxical reactions, *e.g.*, excitement, stimulation and hyperactivity, have also been reported in rare instances.

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



when restful sleep is indicated

Dalmane®
(flurazepam HCl)

One 30-mg capsule *h.s.* — usual adult dosage (15 mg may suffice in some patients).
One 15-mg capsule *h.s.* — initial dosage for elderly or debilitated patients.

- induces sleep within 17 minutes, on average
- reduces nighttime awakenings
- sustains sleep 7 to 8 hours, on average, without repeating dosage

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Opinion & Dialogue

Is there a need for a drug compendium?

Government Health Official

Henry E. Simmons, M.D.
Deputy Assistant Secretary for Health
Department of Health, Education and Welfare



A drug compendium of the type I envision would fill a definite need for the practicing physician. Such a compendium would give him all the information necessary for using a drug intelligently, and it would do so in a clear, concise, convenient, objective and balanced fashion.

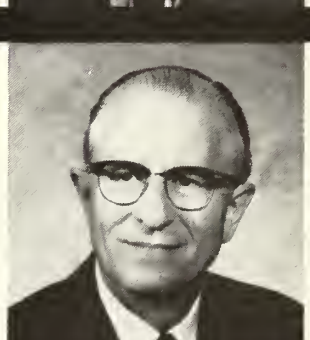
What a Compendium Should Contain

I believe the compendium should inform the doctor what a drug will do, when he should use it, for what type of patient, for how long, in what dose, what benefits his patient is likely to obtain, the risks involved, and cross-reactions with other drugs.

The information would be based on the package insert and have the same legal status. In fact, a complete compendium with complete and current information might even eliminate the necessi

Maker of Medicine

Joseph F. Sadusk, Jr., M.D.
Warner-Lambert Company



A drug compendium, or preferably compendia, should, I believe, be private, not federal, in sponsorship. They should contain comprehensive listings of drugs available for prescribing. They should be single, legibly printed volumes of reasonable size, updated quarterly or semiannually and completely revised every yea

Function of a Compendium

A compendium should furnish the following information on drugs in the following order: indications for use, side effects, adverse drug reactions, contraindications, drug interactions, drug dosage and the dosage forms marketed. Drug prices should not be included because they vary so widely and change rapidly.

No compendium should set forth drugs of choice or discuss relative efficacy. Such questions must be left for the practicing physician to decide, whether on the basis of the medical literature, his own clinical experience, advice of colleagues, information supplied by manufacturers, and so on.

Nor should a compendium undertake to educate the doctor in how to use drugs. Rather, it must be a reference source designed primarily to refresh his memory as to drugs he may not use regularly.

for a package insert in many instances. This would constitute a substantial saving for the manufacturer.

By a complete compendium, I do not mean a volume of prohibitive size. You don't need a book describing 25,000 products with an enormous amount of repetition. Rather, drugs should be arranged by class. Mutually applicable information would be provided, along with brief discussions pinpointing differences in specific drugs of that class. Listings would be cross-indexed in a useful way.

Other Available Documents as Sources of Information

Existing references such as PDR and the AMA Drug Evaluation are obviously useful but they are incomplete. Either they are not cross-referenced by generic name and do not group drugs with similar characteristics, or they do not list all the available and legally marketed drugs. And some of those omitted may be very useful. On the other hand, drugs made by more than one supplier, tetracycline for example, may be fully described a dozen times in the same book.

While perhaps PDR could be rearranged and cross-indexed with generics included, and while the AMA Drug Evaluation might also be modified and expanded, I am not sure that the end result would have all the attributes required for a useful compendium. At the same time, you would run the risk of amassing a voluminous and unwieldy tome.

Should Editorial Comments Accompany the Listings?

Subjective judgments, in my opinion, have no place in a compendium. However, if there is substantial evidence based on a sound body of science concerning relative efficacy of several drugs, certainly that information should be included. The committee of experts compiling and editing a particular section would also have to assess and indicate instances where a meaningful difference between drugs is pertinent.

Sponsorship, Compilation and Editing

Producing a book like this would undoubtedly be difficult and demanding. It would obviously take a great deal of talent and expertise, and would require a varied and experienced group, ranging from writers and editors to highly skilled clinicians and pharmacologists. Style, format and clarity of language would play an important part in determining the usefulness of the book. And it should be updated periodically and completely revised annually.

I have no opinion whether the government or the private sector should sponsor and/or finance the compendium. What is most important is that the compendium be an authoritative, objective and useful source of information for the doctor to have at hand as a ready reference.

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should in no way imply control over the practitioner's prerogatives.

Why Another Compendium?

A practicable, single-volume compendium cannot, nor is it necessary to, include all drugs on the market today. From my practice of internal medicine for some 15 years, my experience as a consultant, and as a faculty member of four or five medical schools, I would estimate that a doctor uses only 30 to 35 drugs regularly. The 1972 Physicians' Desk Reference, incidentally, contained about 2,500 entries.

As to whether there should be a federal compendium, in my opinion, as stated earlier, the answer is easy—there should *not* be one. The proposal assumes that existing compendia are inadequate. We're not sure of that at all. Whatever its imperfections, the present drug information system in the U.S. is open, multifaceted, pluralistic and extensive. Good compendia exist, as well as other ample sources on drug therapy, ranging from journal literature through AMA Drug Evaluation to company materials. Not all physicians may use such sources as often or as well as they should, but that is the fault of the man, not of the sources.

In any event, rather than produce another book, it makes much more sense to work on improving existing compendia, and perhaps they could, as knowledge advances, include more accumulated clinical data and experience, and more information on drug interactions and adverse reactions.

Implications of a Federal Compendium

Take a hard look at the implications of a federal compendium. It would have the force of law, virtually dictating what drugs to use and how to use them. In effect, it would be a regulatory document with legal or quasi-legal status, posing medical/legal problems similar to those the doctor may now encounter if and when he departs from the provisions of the package insert. A compendium under federal aegis would tend to restrict decisions on drug therapy to one orthodox level—a most dangerous trend for medicine.

New Compendium—A Medical Option

I detect no ground swell of initiative or support whatsoever for a federal compendium—or, for that matter, for a new compendium of any type. A 1969 PMA survey conducted by Opinion Research Corporation found that only 15 per cent of those physicians interviewed felt a new compendium was needed. And a large majority did not favor the involvement of the federal government if one were to be created, preferring instead a nongovernmental consortium.

Even if we come to a time when the medical profession itself opts for a new kind of compendium, it should be handled and financed, ideally, outside both government and industry. Final review and editorial authority could be delegated, say, to specialty bodies and medical societies—but above all, *not* the government.

Surely the health care system in the United States has far more vital matters to consider than the extensive cost and effort that would have to go into the preparation and maintenance of a new, monolithic compendium, and especially one bearing the imprimatur of the federal government.

Opinion & Dialogue

What is your opinion, doctor? We would welcome your comments.

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P·M·A

lore of the School matching the anecdotes about Dr. O'Driscoll and Whip McCord.

Some nine years after Dr. Beach's retirement and to his evident pleasure, the Medical College made a major financial commitment to the Department of Pediatrics. The first strict full-time clinical faculty positions at the School were established in Pediatrics. The availability of strict full-time appointments permitted the development of pediatric subspecialty sections and as the Department grew, sections in neonatology, cardiology, hematology, infectious disease, endocrinology and metabolism, genetics, nephrology and ambulatory care were established. As a result, the Department's capability in teaching, patient care, and research was greatly increased and expert consultative and referral services were made available to the physicians of the State. The sections of cardiology, neonatology, and hematology and oncology have gained regional and national reputations for excellence and the other sections are approaching similar stature.

The Department has grown to the point that it now claims 27 full-time faculty members and has experts in almost all of the recognized subspecialty fields. The faculty seeks an impact on the care of children throughout the State. The Neonatology Section is working with the Department of Obstetrics and Gynecology to develop a statewide system of perinatal care. The section of Hematology and Oncology has joined the Southwest Cancer Chemotherapy group and so can provide any child in the State suffering cancer the latest in therapeutic methods. The cardiologists regularly travel throughout the State and make their special skills available to every child with a significant heart defect.

The development of Consortium and Area Health Education Center funding has permitted the Department to establish five full-time teaching positions in the Richland Memorial, Greenville General, and Spartanburg General Hospitals. Subspecialists in infectious disease, neonatology, endocrinology, and ambulatory pediatrics hold these full-time positions in the consortium hospitals. The faculty members are teaching medical students in these major community hospitals and are providing vitality for their residency training programs and postgraduate teaching. A training course for pediatric nurse practitioners is being developed at the AHEC unit in Greenville.

The future of the Department lies in the expansion and strengthening of these statewide programs and in the imminent prospect of a 150 bed pediatric unit in the new Institute of Human Development which is in its early planning stages. As the Department grows in strength, it will provide the State with physicians and nurse practitioners well trained to care for children in offices and clinics. It will support clinical facilities in the regional hospitals. It will provide at the Medical University the most modern and sophisticated facilities for the care of children.

PHARMACOLOGY

THOMAS E. GAFFNEY, M.D.

The Department of Pharmacology which dates back to the appointment of H. R. Frost, M.D., as Professor of Materia Medica in 1824 has played a key role in the development of the research and graduate program of this institution. The records show that the first Ph.D. degree awarded from the institution was in the field of pharmacology. The first building devoted to research on the campus came into existence in 1962, substantially because of the foresight, scholarly commitment and enthusiasm of the late Professor and Chairman of Pharmacology, Robert

Walton, Ph.D., M.D., 1942-1971.

During Dr. Walton's tenure, the department pioneered in the development and evaluation of the Walton-Brodie strain gauge as an instrument for the study of the effect of drugs on myocardial contractility; this technology is extremely useful to cardiovascular pharmacologists and physiologists. Other outstanding research accomplishments include the first demonstration of elevated plasma catecholamine levels in patients with acute myocardial infarction, and the development and evaluation of a hydroxyethyl starch derivative for use in the treatment of shock.

Following Dr. Walton's death in March 1971, James A. Richardson, Ph.D., was appointed Acting Chairman of the department. He served in this capacity until July 1972 when Thomas E. Gaffney, M.D., was appointed professor and chairman of the department.

Cardiovascular pharmacology has been and is the predominant area of departmental investigation. Numerous firsts in research annals have been recorded through the years by members of the Department.

Under the direction of Dr. Gaffney, the faculty has increased from seven to 19. Major new programs have been initiated or are in development. The Department is the recipient of a National Institute of General Medical Sciences Center Grant, one of 11 in the nation.

Together with the Department of Medicine, the Department of Pharmacology is establishing an eight-bed General Research Center in the Medical University Hospital, and is responsible for the administration of the unit.

The Pharmacology Outpatient Research Clinic began operation in April 1974. This unit is intended to serve the research and educational purposes of any department at the Medical University for studies of human pharmacology and therapeutics.

In connection with the development of the two clinical research facilities, we plan to establish a normal volunteer program with the assistance of Mr. Delbert Nye, Director of the Normal Volunteer Patient Program of the Clinical Center of the National Institutes of Health.

Within the next two years, it is planned to establish an interdisciplinary and interdepartmental Hypertension Research Center, including a statewide referral program for diagnosis and treatment of patients with difficult-to-manage hypertension. The Department also plans to establish a statewide patient consultation service on difficult to manage therapeutic drug problems.

In addition to expansion and/or development of research programs in basic and clinical pharmacology, the Department hopes to expand educational programs in clinical pharmacology and therapeutics for medical students, interns, residents, and practicing physicians throughout the state.

PHYSICAL MEDICINE AND REHABILITATION

HARRY W. MIMS, M.D.

The Department of Physical Medicine and Rehabilitation was organized in 1955 as a Division of the Department of Surgery. Since 1965 PM&R has been a separate clinical department. The organization of this department coincided with the opening of the then Medical College, now Medical University Hospital.

Physical Medicine and Rehabilitation functions as a Medical College Department with its own faculty and also as a service department with the Medical University Hospital. Departmental physicians serve as consultants to all other depart-

ments and operate the Rehabilitation Bed Unit. Physical and Occupational Therapy, Vocational and Social Services all are part of PM&R but may be utilized by any staff member directly or through departmental consultation with one of the physiatrists.

This department received approval for a full three year residency in July 1973. The three year program leads to eligibility for certification by the American Board of Physical Medicine and Rehabilitation and an additional fourth year structured individually for those desiring further training will be available.

The present Physical Medicine and Rehabilitation faculty consists of two full-time and three part-time or visiting physicians, one experimental psychologist and teaching assistants in Physical and Occupational Therapy. Two more full-time physicians are being recruited. An active research program under the overall direction of the research psychologist is now developing.

The director of the Rehabilitation Medicine Department at the Veterans Administration Hospital holds a joint Medical University and Veterans Administration appointment and the VA Department is an integral part of the overall teaching and clinical program of the Medical University.

Physical Medicine and Rehabilitation was started by one physician and one physical therapist initially. It has grown appreciably and presently, positions are authorized for four full time M.D.'s, one Ph.D., some 14 physical therapists, 2 occupational therapists, 1 social worker, 1 vocational counselor, and a number of aides and assistants. The staff of the hospital for the Rehabilitation Nursing Unit is provided by Nursing Service. Personnel for this Unit are under the direction of nurses trained in rehabilitation procedures.

Plans are underway for developing a bio-engineering section for experimental design in orthotics and prosthetics. The new facilities now available will permit this department to continue expanding its teaching, research and patient service programs.

PHYSIOLOGY

JOHN G. BLACKBURN, Ph.D.

The Department of Physiology is located primarily in the new Basic Sciences-Dental Medicine Building, containing a wide range of facilities for medical and paramedical instruction. Drawing on a broad base of support, its faculty are assisted by research assistants, computer programmers, electronic and machine shop specialists, animal maintenance personnel, and a secretarial staff.

In addition to specialized research equipment in individual laboratories, the department maintains common facilities such as a PDP-12 Computer, a program calculator system, two multichannel beta and gamma scintillation counters, photographic equipment and dark room, chemical and equipment stock rooms, and walk-in cold rooms.

The Department of Physiology offers to qualified students, programs leading to the degree of Doctor of Philosophy. A combined M.D.-Ph.D. program is also available to our students. The purpose of this combined program is to provide competency in medicine plus detailed knowledge and research training in a related basic science field.

The Department maintains an active, multi-disciplinary program of research. At the present time, research investigations are being conducted in the many following areas: Membrane Physiology, Neurophysiology, Endocrinology, Cardio-

vascular Physiology, Respiration, Muscle Physiology, and Comparative Physiology.

The neurophysiology group has recently joined a multidisciplinary scientific team to study the problems of spinal cord injury. This project, recently funded by the National Institutes of Neurological Diseases and Stroke, is concerned with the elucidation of the basic pathophysiology and electrophysiology of spinal cord injury, which will lead to the design and evaluation of new methods for the treatment of acute cord injury.

The major objectives of the Department of Physiology are twofold: first, to offer quality education to an ever-expanding group of students, secondly, to focus our research talents, using basic investigational procedures, toward the solution of some of the more important health-care problems of the day. In order to meet these objectives, the Department is constantly alert to new programs and innovative techniques. Our plans call for the development of such innovative techniques as programmed self-destruction, closed-circuit video-tape programs, and computer-assisted instruction.

The delivery of health care today is a highly complex, sophisticated, yet intriguing area of human endeavor. The Department of Physiology through its teaching and research programs plays a vital role in preparing our students to meet the challenges of modern medicine and health care delivery.

PSYCHIATRY AND BEHAVIORAL SCIENCES

JAMES B. HOYME, M.D.

Until the early 1950's, the Division of Neuropsychiatry within the Department of Medicine was headed by the late Olin B. Chamberlain, M.D. Dr. Chamberlain's successor and the first chairman of the Department of Psychiatry was J. J. Cleckley, M.D. who continues in the department as professor. He was succeeded in 1967 by R. Layton McCurdy, M.D., the current chairman. Like that of the Medical University, the recent history of this department has been one of rapid growth and diversity.

Characteristic of modern American psychiatry, the department is founded in the biological sciences as well as the social and behavioral sciences. The faculty includes not only psychiatrists but also clinical and experimental psychologists, social workers, and doctoral social scientists with special interests in human development and family life. For these reasons, it was singularly appropriate when the department's name became the Department of Psychiatry and Behavioral Sciences during 1973. This title more accurately reflects the composition of our faculty and the nature of our work.

The primary mission of the department is to provide psychiatric education. The faculty is involved in the education and training of medical students at all levels. In the freshman year, we participate with other departments in the College of Medicine in the Behavioral Science and Neuroscience courses. In the third year, each student participates in a 5½ week psychiatric inpatient clinical clerkship designed to help him toward an understanding of psychiatric diagnosis, an informed ability to use psychotropic drugs, and a familiarity with other methods of psychiatric treatment, including psychotherapy. In addition, the department offers a variety of clinical electives for advanced medical students.

Graduate education programs include a fully approved three year residency in psychiatry which has a current enrollment of 17. Further, graduate students

in clinical psychology in their final year of training leading to the Ph.D. degree spend a full year working in the department as clinical interns. Presently, there are six psychology interns. Social work students on field placement from the University of South Carolina in Columbia spend two days per week in the department working with patients under supervision of the professional staff. In addition, placement education is offered to students in recreational and occupational therapy as well as students in special education for the emotionally disturbed. Special post-doctoral fellows in behavioral sciences research areas round out the department student population.

Another major departmental mission is scientific research. Self-instruction and the assessment of clinical learning have been the major educational and research concerns of the department in the recent past. Several of our faculty have collaborated to devise a programmed, self-instructional system entitled the Psychiatry Learning System (PLS). This approach to the transmission of clinical psychiatric information includes linear programmed instruction complemented by audio-visual examples of the signs and symptoms being described. The PLS is recognized nationally as one of the most exciting innovations in the teaching of psychiatry in recent years. Federal grant funds are supporting the continuing development of this system. Based upon the concepts and skills developed in our work on the PLS, we anticipate the development of additional systems for teaching in such areas as the human life cycle and drug and alcohol abuse.

Drug and alcohol abuse is another important departmental research theme. Four departmental faculty members are appointed jointly with Biochemistry. This research team is studying a variety of behavioral and biochemical characteristics of animals receiving various substances, especially barbiturates and amphetamines. Some of our faculty collaborate with faculty from the Department of Family Practice in the evaluation of new teaching techniques in the areas of alcohol and drug abuse as these problems affect families.

A fifteen bed unit utilizing a variety of treatment techniques in the Charleston V.A. Hospital is limited to the treatment of drug and alcohol problems. Federal funds support several research projects in this Substance Abuse Unit. For example, an epidemiologic survey is under way to discover the degree and variety of drug misuse among Viet Nam era veterans. Another study involves behavioral modification techniques in an attempt to "re-educate" the problem drinker toward acceptable social drinking. This experimental approach is being studied for possible clinical application on a broad scale.

The new Medical University Hospital in-patient units (adult, adolescent, and child) all emphasize the family approach to psychiatric problems, while continuing to employ traditional methods of psychiatric treatment as well. The family orientation towards treatment has generated substantial research interest in family organization and family communications.

Other research work of departmental faculty include studies of the psychological problems of burned patients, psychosis following cardiac surgery, paleopsychology and delinquency.

Our department looks to the future. We anticipate a collaborative effort with the Department of Pediatrics and basic science departments in the broad area of human development. We are planning for an interdisciplinary research program housed in an Institute for Human Development. In conjunction with this research program, we look for a substantial expansion of the child and adolescent educational and treatment components of our department.

Another departmental goal is to increase our contribution to the activities of other components of the University

Hospital and College of Medicine. We hope to complement the research, educational, and clinical programs in the cancer clinic and the cardiology division of the Department of Internal Medicine, to name but two.

Because understanding human behavior and its abnormalities is a frontier in the biomedical sciences, we are excited about the future.

RADIOLOGY

HAROLD S. PETTIT, M.D.

The Department of Radiology had its beginning at its present site at the Univerversity Hospital in 1955. In the initial phase of operation, the Department was staffed by two radiologists, who covered both Diagnostic Radiology and Therapeutic Radiology. A steadily increasing number of patients since that beginning has now seen the staff expand to eight radiologists, two of whom are full time in Therapeutic Radiology. One member from the University Radiology Staff is assigned full time to the Veterans Administration Hospital with a part time equivalent also in attendance from the University Staff radiologists.

The Resident Staff has grown considerably since the inception of the program and averages approximately 14 residents. All phases of radiological training are offered.

Physical plant traditionally had difficulty keeping pace with the increase in patient, student and resident members. However, between four and eight million dollars has been allocated for a Radiological-Pathological Building which will allow a great potential for service to be exercised.

The national trend in radiology has been for a separation of Diagnostic and Therapeutic Radiology into autonomous divisions and this is being implemented at the Medical University at this time. Dr. Keene Wallace heads the Therapeutic Radiology Department. This department has grown considerably since the hospital began to function in 1955 and is scheduled to expand to approximately four times its present size. The department is now equipped with three therapy units and plans call for three additional units in the near future. A computer is available in the department and is used not only for the local facility dosage calculations, but also serves several other hospitals in the state.

In summary, plans for future expansion are well drawn and construction of a new building should enhance operations. The Therapy division has already begun its expansion and the future also looks bright in this area.

SURGERY

CURTIS P. ARTZ, M.D., LAWRENCE D. HANBACK, JR., M.D.,
and BURTON F. HOOD, M.B.A.

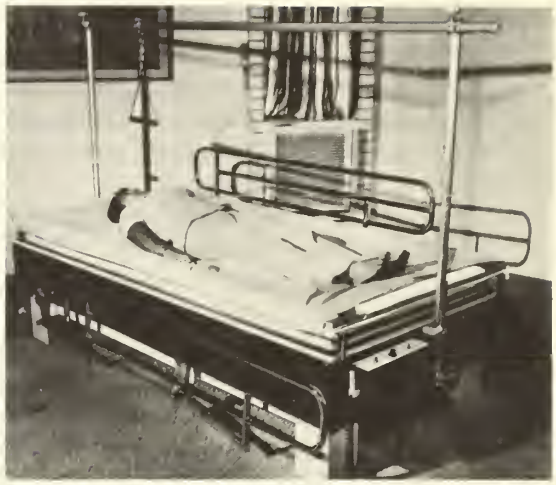
The College of Medicine has seen many progressive changes in its 150 years of history—changes wrought by generations of dedicated physicians. The present faculty has contributed to this evolution by drawing upon its past achievements for proven guidance, but at the same time continuously evaluating trends and seeking ways to improve its service in the future. Nowhere is this more evident than in the Department of Surgery which in the past decade has become a standard bearer for elevating the qualities of excellence in teaching, research and patient

care. The residency program began in 1934 with one surgical resident. The Department of Surgery has developed into a multidivisional organization with training programs and accredited residencies fully approved in general, thoracic, neurosurgical and plastic surgery.

This growth has taken place in stages, the first of which occurred in 1944 when Dr. Fred Kredel became the first full-time professor and chairman of the department. In 1947, the general surgery residency was increased from three to four years. It was during this period that the first steps in the development of thoracic surgery occurred at the Medical University. Dr. Horace G. Smithy became a full-time faculty member and started his pioneering work on surgery of the heart. A brilliant career was cut short by his untimely death in 1948.

Following Dr. Kredel's death in 1962, the Department faltered briefly but soon resumed its upward development under Dr. George Clowes. In 1966 coinciding with the appointment of Dr. William McCord as permanent President of the Medical College, Dr. Curtis P. Artz assumed the chairmanship of the Department of Surgery. He set as his first task, the augmentation of a fine surgery faculty with a number of young but highly regarded surgeons. An active recruiting program increased the number of general surgery residents from 12 to 17. Activity in the investigative program was intensified, and with the addition of a biomedical engineer, and a supervisor of surgical laboratories, new grants were obtained and the research effort was reorganized.

The following year was a period of great expansion. The opening of the County Hospital and the Veterans Administration Hospital provided a significant increase in residency posts with new facilities and an excellent variety of patients. A new peripheral vascular laboratory was constructed and a cardiovascular operating room was opened to provide a marked improvement for enlarging the



Air Fluidized Bed

cardiac surgery program. The first step in developing a close working relationship between the Department of Surgery and the surgical sections at other state hospitals was achieved by a program of rotating faculty members to the Spartanburg General Hospital and the Columbia Hospital.

The college year of 1967 saw the organization of a new Division of Plastic and Maxillofacial Surgery in the Department. Changes in the organization of the surgical services made a great improvement in patient care during the year. The Charleston County Hospital opened a new well equipped intensive care unit and a special neurosurgical intensive care unit was built and opened in the Medical College Hospital. A great source of satisfaction was the support received from the South Carolina Surgical Society in establishing the Frederick E. Kredel Foundation. Research activities were expanded greatly. Two highly competitive, heavily funded, federal grants were awarded by the Department of Defense.

Culminating a tremendous amount of research relating to thoracic duct cannulation a team of the department surgeons performed the first human kidney transplant operation in the state of South Carolina on December 3, 1968. Another significant achievement that year was the delivery and use of the pilot model of an air

fluidized bed which proved to be a major breakthrough in patient care and comfort. A first for any medical school in the country occurred during the summer when the Department sponsored a special Bioengineering course to indoctrinate industrial engineers into the problems of health care delivery.

The opening of the Basic Science Building in the fall of 1970 provided many benefits to the Department of Surgery; not the least of which was a newly furnished office suite for general surgery. A new curriculum was introduced which provided for a core course in surgery with increased opportunities for electives.

After a great deal of planning a Burn and Trauma Center opened in 1971. This provided the state and indeed the entire Southeastern United States with a first class facility utilizing the team approach to health delivery in a critical specialty.

The increasing scope of responsibility for surgical education was demonstrated by Department sponsorship of an excellent postgraduate course attended by 130 surgeons from the Eastern United States and a course for emergency room nurses attracted 100 nurses from the Southeast. With the pressing interest in maximizing a physician's effective time, a physician's assistant clerkship was established to evaluate this source of valuable, specialized personnel. With all of these ongoing activities, the faculty did not neglect its research or scholarly endeavors as indicated by the fact that 74 papers were published by the surgical faculty in 1972.

With the expansion of the Medical University to 165 students per class in 1973 arose a significant increase in the teaching loan, but this has not lessened the interest in research or patient care. Currently, all of the surgical services are caring for more patients than ever before, and the number of research grants is at a record level.

The high quality and national esteem of the surgical faculty has been reflected in many honors received by members of the Department. Eight members of the Department have been elected to membership in The Society of University Surgeons and ten members of the Department now are Fellows of the Southern Surgical Association.

The research efforts of the Division of Neurosurgery are directed toward the experimentally injured spinal cord. The Medical University is a center for the National Spinal Cord Injury Registry and currently is leading a large program project grant from the National Institutes of Health in that field.

Provision of additional space in the Clinical Science Building scheduled for occupancy in the fall of 1975 presents a new vista of opportunity for surgery. With significant increases in office space, research facilities, classrooms and learning laboratories will come increases in the staff and faculty and the fuller implementation of innovative teaching techniques that have come of age in the audio-visual field.

Currently we see a new, vigorous drive to develop a system of specialized emergency medical services. The Department of Surgery is deeply involved in the delivery of emergency medical care throughout the state. It has a special section on emergency medical services. Adequate emergency medical services are fast becoming the logical third service along with fire and police protection. Specialized emergency department physicians are on duty in many community hospitals and will soon be a part of the training program in the emergency department.

Two other trends are worthy of mention. There has been an increasing emphasis in the training and employment of paramedical personnel and physicians' assistants. Some of these people are former military medical corpsmen; others are bright young students interested in this rewarding career. Many are now serving in hospitals, particularly in emergency rooms and in specialized rooms within the hospital. A limited number are

being trained as assistants to surgeons. This approach has many benefits and can pay high dividends in emergency situations in the management of a large number of patients. Another developing trend is the team approach to health care. As one looks at our hospitals today, those areas such as intensive and coronary care units, burn and trauma units and clinical research centers undoubtedly give the best care. These units exemplify the team approach in which doctors of various specialties, residents, nurses, dietitians, physical therapists and other health care professionals join hands in caring for complicated health problems. It is obvious that the team approach should be fostered and participation of surgeons in the field be encouraged.

The use of a clinical engineer as a member of the health care team has led to new developments in dialysis, filtration of lymphocytes, in thoracic duct drainage, air driven dermatomes, the air-fluidized bed and many other devices.

In the 37 years since 1937 when one resident completed the program, there have been 72 General Surgery residents, 14 Thoracic Surgery residents, 6 Neurosurgical residents and 3 Plastic Surgery residents who completed training in the Department of Surgery, a total of 95 surgeons. Of these, 47 have practiced in the State of South Carolina. Ten are at present continuing training or are in the military service and may well return to South Carolina to practice.

The Department has grown to meet the challenge of increasing medical needs in the state, of improving the quality of medical care and of assuring the availability of well-trained surgeons in all specialties to all citizens. The Department shall continue to meet the developing challenges of the future.

PEDIATRIC SURGERY— H. BIEMANN OTHERSEN, JR., M.D.

Pediatric Surgery is a relatively new specialty which has been established within the Department of Surgery since 1965. The Pediatric Surgical Service offers the most up-to-date treatment and care of infants and children with surgical problems along with the newest concepts of therapy in teaching and research.

The service is composed of one full-time faculty member with concomitant appointments in the Departments of Surgery and Pediatrics, and the Division of Thoracic Surgery. The service is completed with a Pediatric Surgical Fellow, a third or fourth-year resident; a junior assistant resident; an intern; and three to four third-year medical students. It cares for an extremely large patient population with approximately ten to fifteen major operations per week.

An innovation in the care of children at the Medical University Hospital has been the "In and Out Ward." Ten beds on the Pediatric floor have been designated for children admitted for elective operations from any of the surgical services for a stay of two days. During the weekend, patients are not admitted to these beds.

In addition, the Pediatric Surgical Service has employed another admitting policy which is known as the "Short-Stay Admission (one day)." These patients are evaluated as outpatients and the necessary laboratory tests obtained 24 hours prior to the date of admission.

Current research projects include:

1. Xenogeneic lymphocytotherapy of cancer in children,
2. Steroid therapy of tracheal strictures,
3. Injection and stenting of esophageal strictures.

In pediatric surgery, cooperation with other specialists is essential. For example, the child with cancer requires treatment by a team of specialists in chemotherapy, radiotherapy and surgery.

The surgical care of children in South Carolina has a bright future. Full-time pediatric surgeons (William Bomar, M.D., Greenville; Foster Marshall, M.D., Columbia; and the Pediatric Surgical Service in Charleston) constitute equal geographic distribution throughout the state. Through the consortium program, the facilities of the pediatric surgeons in Greenville and Columbia and the Pediatric Surgical Service will be available to students for training on elective rotations.

Thus, it is clearly evident that in South Carolina, expert surgical care of children has assumed proper status.

UROLOGY

W. R. TURNER, JR., M.D.

The Residency Program of the Department of Urology was first accredited in 1946, under the leadership of Dr. James J. Ravenel, who now serves as Professor Emeritus of Urology. The Chair subsequently passed to Dr. Paul Sanders, Jr., who served with distinction until retiring in 1966. Dr. Kenneth M. Lynch, Jr. joined the faculty as Professor of Urology in 1958, becoming Chairman in 1966. Under the late Dr. Lynch's leadership, the Department continued and accelerated its rapid expansion.

The number and diversity of cases admitted to the University Hospitals have increased tremendously with each succeeding year. This is partially due to the increased number of beds, now approaching 60, but also to the interest of the physicians in the State. Further essential expansion is expected with the building of the eagerly awaited children's hospital. At present the University Urology System encompasses three hospitals: the University Hospital, the Charleston County Hospital and the V. A. Hospital. Each hospital serves a specific as well as a general purpose in the Residency Program. In order to take advantage of the expertise of the private physicians of the community, the Department is beginning a Pediatric Urology Service in association with Roper Hospital. The teaching activities of the Department include a fully accredited four year urology residency with two residents at each level. Elective rotations are offered to the medical students and the number and the popularity of these rotations show an increasing interest in urology. Salaried clerkships are offered to those students interested in urology who graduate early and must wait before beginning their internships. The addition of videotape facilities this year has further broadened the scope of the teaching program. Each year the Department has sponsored a symposium for urologists within the state, inviting outstanding urological authorities to come to the University and serve as visiting professors. This year and next year two such authorities have been scheduled. These professorships serve to introduce the residency staff to new ideas and concepts of urological practice.

Of tremendous importance to the residency system was the recent receipt of the Joseph Hume Fund which will permit rising senior residents to observe and study with some of the finest urological minds in the Western World. Junior residents will be able to attend seminars and purchase books which would not have been previously available to them. The recent addition of a Renal Medicine Unit with its excellent facilities and staff has increased the Department's involvement in chronic renal disease and transplantation. This promises to be one facet of the Depart-

ment's involvement which will rapidly expand. Also this year a Urological Spinal Cord Injury Clinic was started and has already exceeded expectations.

The involvement and activity of the part-time faculty increases with each year and adds immeasurably to the success of the Department. The full-time faculty is at present expanding with the addition of a pediatric urologist this year and several part-time faculty. Further expansion is planned in the near future. The faculty is actively involved in many projects, some of which include infertility, neurogenic bladder function, oncological treatment, microvascular blood flow, drug therapy and many other aspects of urological disease.

The Department of Urology looks forward to increased involvement in teaching and service as the University continues its expansion.

COLLEGE OF GRADUATE STUDIES

FREDERICK W. KINARD, M.D.

The College of Graduate Studies is a comparatively recent development of the Medical University of South Carolina. The endeavor was initiated in 1949 as a committee action entirely separate and distinct from Medicine, Pharmacy and Nursing, and evolved into a school, with its own dean, in 1969. In the beginning, the departments of anatomy, chemistry, pathology, pharmacology, and physiology were involved, joined a year later by microbiology, and quite recently by biometry. The first six components offer programs leading to the degrees of Master of Science and/or Doctor of Philosophy whereas the latest addition, e.g., biometry, offers master's work only.

In a period just short of 25 years, 69 candidates have completed work for the master's degree and 40 candidates have completed the work required for the Ph.D. degree. Proof of the excellence of the training offered, and the need of the opportunities to undertake such studies, is best shown by the degree of acceptance of the finished product and the outstanding successes of the graduates. Former graduate students head research branches of governmental and industrial units and occupy positions ranging from instructors and departmental chiefs to vice-president of university medical science divisions. Research is emphasized so it is not surprising that the graduates achieve recognition as investigators.

At the present time, there are 94 members of the General Faculty who are designated as members of the Graduate Faculty. The Graduate Faculty, all of whom have doctoral degrees and research specialties, come from 58 different universities, including six in foreign countries. This broad background of individual special training and interests ensures that students can find some particular facet of investigation which will be stimulating and interesting. The seven primary fields of basic medical science are consequently subdivided into many more areas of study.

What developments are expected in the future? There is a never-ending increase in sophisticated instruments available for more precise studies, an ever enlarging graduate faculty which brings in a wider spectrum of knowledge and expertise and more opportunities for graduate students to find a place on the campus.

With the rapidly expanding research facilities in the University, and a larger and more widely representative faculty, it is not surprising that students are being selected on a more discriminative basis. The complexity of modern medical basic sciences due perhaps to a change from

biology-based disciplines to those which interweave mathematics, physics, chemistry and biology, make it necessary for both faculty and students to have a solid background in these subjects which are used and applied. The Graduate Faculty not only desires to provide training which will enable students to develop their own potentialities but is striving to create an intellectual environment which will stimulate and foster the production of excellent teachers and investigators. Into this scholarly milieu serious students are invited.

Excellent students are needed, and these will find stipend support, laboratory space and splendid instruction, to work in the laboratories with experienced investigators in attacking the unsolved problems which remain in the basic medical sciences.

HEALTH AFFAIRS LIBRARY

WARREN A. SAWYER, M.S.L.S.

When established in 1824, the Medical College of South Carolina had the good fortune to become the repository for the library of the Medical Society of South Carolina. The Medical Society's collection, one of the seven medical libraries established during the 1700's in the United States, and the first in the southeastern states, was to become for a time a valuable working nucleus for the faculty and students of the Medical College. During the latter part of the 18th and early part of the 19th century, this collection was removed from and returned to the Medical College on several occasions. In 1965, the Medical Society and the Medical College Library entered into an agreement whereby the Society's books were placed on permanent loan in the College Library.

While the Library of the Medical College continued to depend upon the Society's collection for support, it developed independently and by the early 1900's had become a supporting collection in its own right. The Library was moved to the Library-Pathology building on the northeast corner of Calhoun and Barre in 1930.

Until the late 1960's, the Library grew at a slow but steady rate. With the change of the Medical College to university status in 1969, an increased financial and facility program for the expansion of the Library was initiated to provide educational and research support for the growing colleges of the university.

In April, 1971, the book and journal collections of the University were gathered from many storage areas as well as the old medical library, the dental library, and the nursing library and placed in the library portion of the recently constructed Library-Administration Building. One hundred and seventy-five individual carrels are provided for study and research. A portion of one floor is devoted to audio-visual facilities and wired carrels are provided for this purpose. Materials offered include films, audio tapes, computer-based programs, videotapes, and other nonbook items.

The Waring Historical Medical Library, located on the former Porter campus, houses the previously mentioned Library of the Medical Society of South Carolina in addition to many other valuable and rare items. This collection is representative of the early history of medicine and is operated under the direction of Dr. Joseph I. Waring, curator.

The rapid growth of the colleges of the University, coupled with curricular changes and expanding research programs, has had a profound effect on Library growth. The collection has doubled in size since 1968 and now contains in excess of 96,000 volumes. More than 2,300 current journals are received.

In addition to traditional services, the

Library provides a computer terminal for access to the National Library of Medicine's MEDLINE data base which contains bibliographical citations from more than 2,400 journals. The Library's Extension Division provides services to any health practitioner in South Carolina through a toll-free WATS (Wide Area Telephone Service) line. This division also provides consultants to hospital and medical society libraries throughout the state.

Future planning calls for the construction of an additional floor to be used solely for a learning resource center which will evaluate and house nonbook educational materials. The resulting structure will combine all modes of biomedical communications and provide a true learning environment not only for the formal education of students but for the continuing education of all health practitioners.

PRESCRIBING INFORMATION

Antiminth (pyrantel pamoate) Oral Suspension

Actions. Antiminth (pyrantel pamoate) has demonstrated anthelmintic activity against *Enterobius vermicularis* (pinworm) and *Ascaris lumbricoides* (roundworm). The anthelmintic action is probably due to the neuromuscular blocking property of the drug.

Antiminth is partially absorbed after an oral dose. Plasma levels of unchanged drug are low. Peak levels (0.05-0.13μg/ml.) are reached in 1-3 hours. Quantities greater than 50% of administered drug are excreted in feces as the unchanged form, whereas only 7% or less of the dose is found in urine as the unchanged form of the drug and its metabolites.

Indications. For the treatment of ascariasis (roundworm infection) and enterobiasis (pinworm infection).

Warnings. *Usage in Pregnancy:* Reproduction studies have been performed in animals and there was no evidence of propensity for harm to the fetus. The relevance to the human is not known.

There is no experience in pregnant women who have received this drug.

Precautions. Minor transient elevations of SGOT have occurred in a small percentage of patients. Therefore, this drug should be used with caution in patients with pre-existing liver dysfunction.

Adverse Reactions. The most frequently encountered adverse reactions are related to the gastrointestinal system.

Gastrointestinal and hepatic reactions: anorexia, nausea, vomiting, gastralgia, abdominal cramps, diarrhea and tenesmus, transient elevation of SGOT.

CNS reactions: headache, dizziness, drowsiness, and insomnia. Skin reactions: rashes.

Dosage and Administration. *Children and Adults:* Antiminth Oral Suspension (50 mg. of pyrantel base/ml.) should be administered in a single dose of 11 mg. of pyrantel base per kg. of body weight (or 5 mg./lb.); maximum total dose 1 gram. This corresponds to a simplified dosage regimen of 1 cc. of Antiminth per 10 lb. of body weight. (One teaspoonful = 5 cc.)

Antiminth (pyrantel pamoate) Oral Suspension may be administered without regard to ingestion of food or time of day; and purging is not necessary prior to, during, or after therapy. It may be taken with milk or fruit juices. Because of limited data on repeated doses, no recommendations can be made.

How Supplied. Antiminth is available as a pleasant tasting caramel-flavored suspension which contains the equivalent of 50 mg. pyrantel base per ml., supplied in 60 cc. bottles.

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Data on file at Roerig.

Please see prescribing information on facing page.

President's Pages



GOAL #1 — 1974

Nearly all the problems which have faced the medical profession over the past 30 years have resulted from the fact that people could not get a physician or did not know how to get a physician when they needed one. Sometimes this problem has been compounded partially by the patient or his family, but nevertheless we are saddled with this public image of a physician shortage which physicians are made to appear uninterested in relieving. Five years ago this was the motivating force which led our Legislature to enlarge the practice privileges of osteopaths. By the time this page is printed the Legislature will probably have approved financing of a second medical school for South Carolina despite the high cost of running such a school, a lag time of almost 10 years before the graduate of such a school will begin practice, and the doubtful ability of our underfinanced state public school system to furnish candidates from South Carolina qualified to enter such a school.

Whether or not the Columbia medical school becomes a reality, we must settle any minor differences between ourselves. Generally speaking the physicians in Columbia have favored the second medical school; and those in the rest of the state for the most part have opposed the second medical school. The physicians in the rest of the state who have opposed the second medical school must realize that the Columbia physicians have been motivated by the sincere belief that this second medical school represents the best method of solving the physician shortage. They were not motivated by personal ambition or by financial advantages for the Columbia area. The Columbia physicians and their friends should be able to sympathize with the fears of many physicians in the rest of the state that a second medical school would dilute funds from the Medical University of South Carolina and its Consortium Program. With this mutual understanding we physicians should concentrate on three major goals:

1. We must cooperate in making sure that this second medical school turns out to be the high quality institution that its proponents have promised us it will be. We must make certain there are no skimping of funds for its support and no shortchanging in the quality of its faculty or equipment.

2. We must make sure that the Medical University of South Carolina and its Consortium Program does not get shortchanged in funds and reverse the present favorable

trend, which if it continues, will produce the projected satisfactory ratio of physicians of 130/100,000 population by 1979 and the excellent ratio of 160/100,000 by 1983.

3. Finally we need the ideas and the support of the physicians of the Association for the new Long Range Planning Committee. This committee has been given as its first and most urgent charge to find supplementary methods of relieving the physician shortage in South Carolina before the projected date of 1979 in cooperation with the Legislature, the Health Policy and Planning Committee, local communities, and all interested citizens. Recently Walterboro announced that through the efforts of its community committee which included physicians, four new physicians were coming to town to practice with the nine already established there. Hopefully this pattern might be repeated in many communities throughout South Carolina in co-operation with MUSC and the South Carolina Medical Association.

As physicians, we have the best knowledge and experience to choose methods of relieving the doctor shortage that will be in the ultimate interests of the patient. To this knowledge and experience we must add the work and time necessary so that the public is fully aware we do care, and care enough to solve this problem.

Donald G. Kilgore, Jr., M.D.
SCMA President

The Journal of the South Carolina Medical Association

50 YEARS AGO

June, 1924

T. A. Pitts of Columbia was Associate Editor of Roentgenology. The death of Dr. J. L. Napier of Blenheim was reported. The Charleston Medical Society was noted as having 78 members with two scientific meetings every month except in the summer.

Editorials

To commemorate the sesquicentennial anniversary of South Carolina's medical educational institution, this entire issue of JSCMA is devoted and dedicated to THE MEDICAL UNIVERSITY OF SOUTH SOUTH CAROLINA. Congratulations!

EEK

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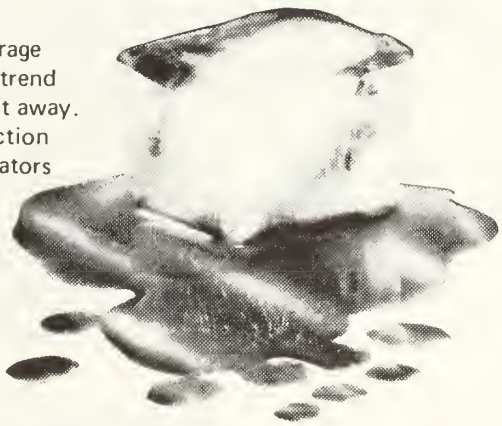
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TO THE
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S.C.M.A. AUXILIARY CONTRIBUTES TO MEDICAL UNIVERSITY OF SOUTH CAROLINA

A donation of $12,341.91 for research and education was made to the Medical University of South Carolina by the Woman's Auxiliary to the South Carolina Medical Association. Mrs. Hasell Ross of Columbia, representing the State Auxiliary, presented the check to Dr. William McCord, President of the Medical University. The funds were raised by projects of the fourteen County Medical Auxiliaries of the State.

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SCRMP SCREENING PROGRAM

The South Carolina Regional Medical Program has agreed to sponsor a high risk screening program for hypertension and heart and lung disorders in children. This is a screening program designed to benefit the patients of practitioners in South Carolina and assist them in seeking out those patients who are at risk for arteriosclerotic and hypertensive heart disorders. As is known, our state has a particularly high risk of these disorders which probably begin in childhood.

Those who desire may refer *children* from families where there is a history of hypertension, lung disorders, or a premature coronary event for free blood cholesterol determination and history evaluation. The screening programs can be conducted in Charleston, Columbia, Florence, Greenville, and Spartanburg. Completion of a simple history form and collection of a blood sample are all that will be required. Should further information be desired, please write or call us in Charleston.

Arno R. Hohn, M.D.
Division of Pediatric Cardiology
Medical University of South Carolina

NEW! Patient Therapy Packs

Because many patients tend to stop treatment prematurely, the full course of b.i.d. therapy is now specially packaged to encourage patients to complete the full course of therapy.

CANDEPTIN Vaginal Ointment Therapy Pack—two 75 gm. tubes
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CANDEPTIN Vaginal Tablet Therapy Pack—28 vaginal tablets

Brief Summary

Description: CANDEPTIN (Candicidin) Vaginal Ointment contains a dispersion of Candicidin powder equivalent to 0.6 mg. per gm. or 0.06% Candicidin activity in U.S.P. petrolatum. 3 mg. of Candicidin is contained in 5 gm. of ointment or one applicatorful. CANDEPTIN Vaginal Tablets contain Candicidin powder equivalent to 3 mg. (0.3%) Candicidin activity dispersed in starch, lactose and magnesium stearate.

CANDEPTIN VAGELETTES Vaginal Capsules contain 3 mg. of Candicidin activity dispersed in 5 gm. U.S.P. petrolatum.

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Indications: Vaginitis due to *Candida albicans* and other *Candida* species.

Contraindications: Contraindicated for patients known to be sensitive to any of its components. During pregnancy manual Tablet or VAGELETTES Capsule insertion may be preferred since the use of the ointment applicator or tablet inserter may be contraindicated.

Caution: During treatment it is recommended that the patient refrain from sexual intercourse or the husband wear a condom to avoid re-infection.

Adverse Reaction: Clinical reports of sensitization or temporary irritation with CANDEPTIN Vaginal Ointment, Vaginal Tablets or VAGELETTES Vaginal Capsules have been extremely rare.

Dosage: One vaginal applicatorful of CANDEPTIN Ointment or one Vaginal Tablet or one VAGELETTES Vaginal Capsule is inserted high in the vagina twice a day, in the morning and at bedtime, for 14 days. Treatment may be repeated if symptoms persist or reappear.

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Federal law prohibits dispensing without prescription.

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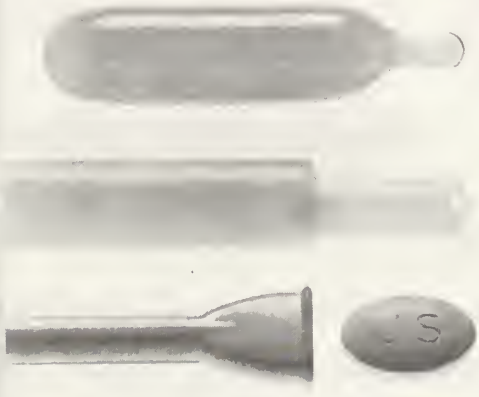
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Rondomycin®
(methacycline HCl)

CONTRAINDICATIONS: Hypersensitivity to any of the tetracyclines

WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**

Usage in pregnancy: (See above **WARNINGS** about use during tooth development.)

Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.

Usage in newborns, infants, and children: (See above **WARNINGS** about use during tooth development.)

All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.

Tetracyclines are present in milk of lactating women taking tetracyclines.

To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.

Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.

PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.

In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.

Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.

In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).

Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.

Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.

ADVERSE REACTIONS: **Gastrointestinal** (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.

Skin: maculopapular and erythematous rashes, exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).

Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).

Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.

Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.

Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.

Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur.

USUAL DOSAGE: **Adults**—600 mg daily, divided into two or four equally spaced doses. More severe infections: an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, 'Rondomycin' (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.

For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.

Eaton Agent pneumonia: 900 mg daily for six days.

Children—3 to 6 mg/lb/day divided into two to four equally spaced doses.

Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.

Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.

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While Valium can be a most helpful adjunct to your counseling, it should be prescribed only as long as excessive psychic tension persists and should be discontinued when you decide it has accomplished its therapeutic task. In general, when dosage guidelines are followed, Valium is well tolerated (see Dosage). For convenience it is available in 2-mg, 5-mg and 10-mg tablets.

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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

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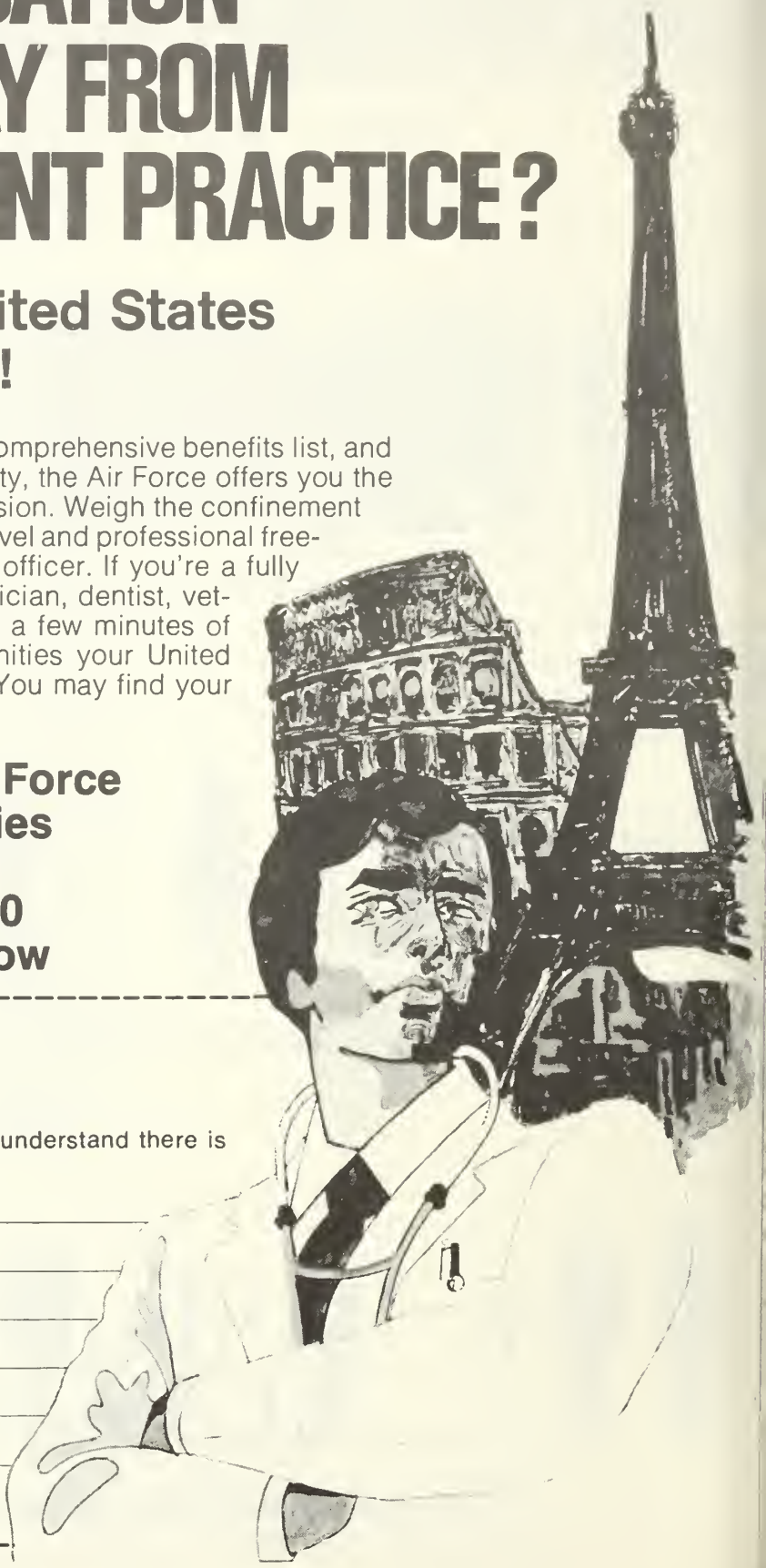
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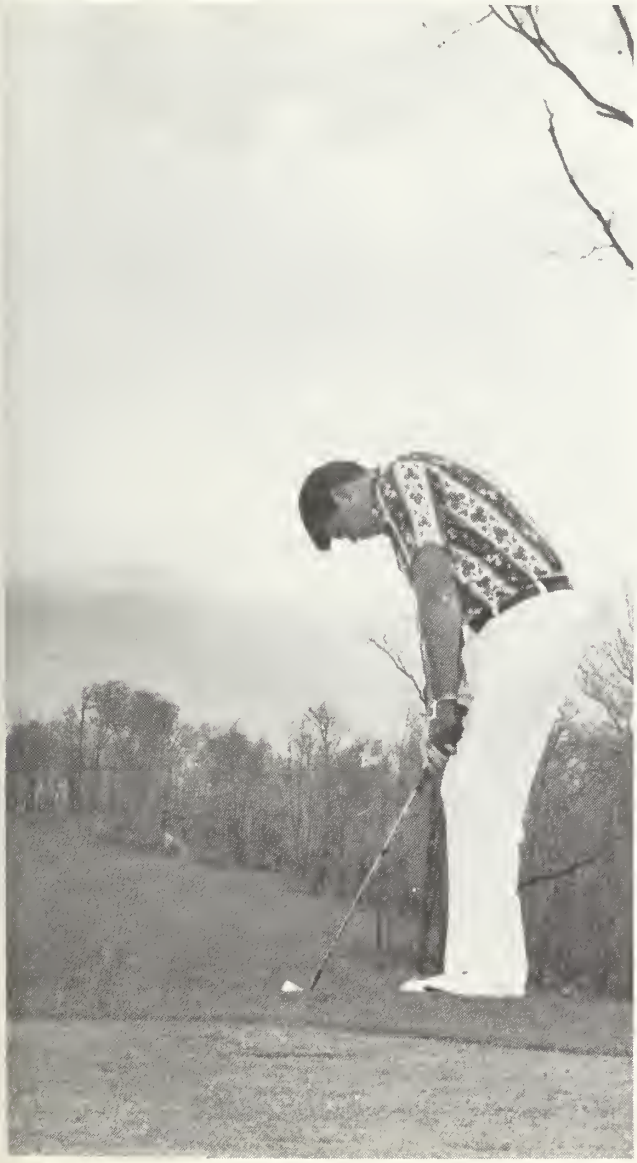
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THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 70 JULY, 1974 NUMBER 7

CANCER TOPICS

PAUL H. O'BRIEN, M.D.*

IMMUNOLOGY AND CANCER REVISITED

The concept of immunologic control of human cancer is not a new one. The first heterologous serum used in a human cancer patient was in 1875. The outstanding success of diverse vaccines developed at the dawn of the Twentieth Century for various childhood exanthemata caused a renewal of interest in controlling cancer via immunologic manipulation. The major handicap to investigating cancer with animal tumors was that the tumor and the host animal were seldom syngeneic; i.e., of similar genetic origin. This obviously made for an experimental model not analogous to what we see in human cancer. Woglom summarized many of these early studies in 1929,[1] pointing out that what was being studied in the laboratory was not the phenomena of cancer but phenomena peculiar to transplantation. It was a most extensive review of the early investigations in cancer immunology and dampened interest in investigating immunologic control of cancer until 1943. Gross, utilizing syngeneic animal tumors, documented immunologic activities peculiar to the invading cancer.[2] Foley, in 1953, had a reproducible animal model with a syngeneic cancer wherein the animal could be made resistant to a subsequent inoculation of the tumor cells via previous sensitization. Both of these investigators could document that the tumors produced a type specific tumor antigen which aroused the immunologic defense mechanisms of the host. Furthermore, the host animal was now resistant to further attempts to inoculate that sensitized animal with more of the same tumor cells.[3]

I believe it is terribly important to review the above concepts. Animal tumor systems where the tumor does not come from the same genetic pool as the host are still being used for the study of how immunologic systems affect cancer. It was an asyngeneic inoculation of an animal tumor by Dr. George Crile which led him to conclude that the regional lymph nodes should be left behind in cancer surgery.[4,5] The regional lymph nodes play a significant role in the control of transplanted

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asygeneic tissue whether it be tumor or skin. There is no doubt that when regional lymph nodes are removed, the transplanted tissue, tumor, or skin will take more readily. Such phenomena have little in common with the relationships between regional lymph nodes and a syngeneic cancer, whether in animals or humans.[6,7,8]

Evidence that the immune system reacts to tumor antigens in humans has been accumulating during the past decade. Everson and Cole published a book on cancer patients who had undergone spontaneous remission. The patients were well documented and there was no other explanation for the patient surviving and controlling the cancer outside of "immunologic systems".[9] Sophisticated laboratory techniques developed within the past decade have permitted the definition of specific if minute quantities of antibody to malignant melanoma, diverse sarcoma, neuroblastoma, hepato-cellular carcinoma, and carcinoma of the colon. The antibody that is now possibly of the greatest clinical value is a goat antibody which defines the presence or absence of the carcinoembryonic antigen from cancer of entodermal origin. The carcinoembryonic antigen is a glycoprotein of embryonic entodermal epithelium. A commercial laboratory test has been developed by Hoffman-LaRoche, Incorporated. The carcinoembryonic antigen (or CEA as it is known) is not an absolute test for malignancy. Its major role is in the management of the patient with proven colon cancer. By monitoring the level of CEA in the circulation before and after therapy, it is possible to obtain an earlier indication of tumor recurrence or undetected metastasis than is now available with other clinical techniques.

The importance of the thymic-dependent lymphocytes as potential protectors of the human against cancer has been emphasized and is most often associated with Robert A. Good. Dr. Good has shown quite clearly the diverse origins of lymphocytes can now be identified and *in vitro* these cells demonstrate a cancer-killing capacity. Dr. Good has further reinforced this concept by showing how in patients with immunodeficiency diseases, specifically diseases with compromised thymic-dependent lymphocytes, the incidence of cancer becomes astronomical; i.e., approximately 10,000 times the incidence expected by chance. Such a system has emphasized the overwhelming significance of the thymic-dependent lymphocyte, if somewhat neglectful of the globulin dependent humoral immunity in human cancer.[10]

The Hellstroms have studied the interactions of cellular and humoral immunity in human cancer. The documentation of how thymic-dependent lymphocytes *in vitro* successfully control and kill diverse cancers in the absence of serum are very similar to studies done elsewhere. Unique to the Hellstroms has been, however, the proof that introduction of serum and/or humoral antibodies to the *in vitro* interplay between sensitized thymic-dependent lymphocyte and the tumor inhibits the ability of the thymic dependent lymphocyte to destroy the tumor, a laboratory observation of enormous significance.[11]

The lymphocyte surveillance theory considers cancer to develop from an inadequacy or a lack of sensitivity of circulating thymic-dependent lymphocytes. Now there is an alternative theory wherein the lymphocytes are appropriate and vigorous but the lymphocytes are frustrated by the presence of inappropriate antibodies which function as blocking antibodies and destroy the capacity of the so-called "killer lymphocyte" to respond to membrane type specific tumor antigens and destroy the cancer cell.

Immunotherapy theoretically has the advantage of attacking only those cells possessing the type specific tumor antigens and sparing normal cells from damage. This obviously would be a great advantage over the conventional methods of surgery and radiotherapy which damage normal cells in the vicinity of the cancer cell. However, it must be remembered that immunotherapy will probably never pro-

vide host defenses to control cancers which have reached a population of greater than a billion tumor cells. A cancer with a billion tumor cells is, to the clinician, a very minimal cancer, being approximately only one centimeter in diameter. It has been postulated that the proper role for immunotherapy would be in patients with undetectable sub-clinical cancer. The number of thymic dependent lymphocytes required *in vitro* to kill a cancer cell would imply that this system could never cope with more than 10^3 or 10^4 cancer cells *in vivo*.[12]

Active immunotherapy in man has been comprised of "vaccines" composed of tumor cells rendered impotent via freezing and thawing, ionizing irradiation, and/or exposure to ultra violet. Studies to date in patients with advanced disease have been disappointing. This is not surprising in that the patients have had virtually billions of cancer cells present at the time of the treatment. There is a great concern with the use of such vaccines that the "vaccines" might accelerate the globulin dependent humoral immune system into proliferating blocking antibodies and frustrating the patient's capacity to cope with this cancer.

It is from the Hellstrom's work that we should be extremely cautious before introducing any unknown antigenic substances into a patient with cancer. It is not enough to say that it might work; it is probably more accurate to say it might very easily be quite harmful. Very possibly a future effective therapeutic approach to human cancer will not be by improving the number or activities of the thymic-dependent lymphocyte but rather the utilization of an anti-plasma cell vaccine to contain the capacity of the cancer patient to produce antibodies which inhibit the contact between thymic-dependent lymphocytes and cancer.

Other methods of immunotherapy involve anti-tumor sera and lymphoid cells. Possibly anti-tumor sera might be utilized to destroy the above mentioned blocking antibodies. The role of humoral blocking antibodies as a potential therapeutic mechanism requires further elucidation. Lymphocytes, sensitized *in vitro* and in adequate numbers, present many problems with such a type of therapy on more than the occasional patient. The volume of lymphocytes required for even the *in vitro* destruction of the cancer cell again would lead one to conclude that such a technique would best function when the patient had less than clinical cancer.

A method of immunotherapy which shows promise is the utilization of Lawrence's transfer factor, which is extracted from lymphoid tissue. Transfer factor is capable of transferring from human to human immunity to skin grafts, tuberculosis and other antigens. It might well have a role in those human cancers suspected to be of viral origin.[13] Pioneering efforts in this area are now underway by Dr. Hugh Fudenberg.

If this author is somewhat skeptical of current attempts at immunotherapy because of lack of specificity and the very real possibility of production of unwanted blocking antibodies, other modalities for therapy using immunologic techniques are developing all the time. Methods of modifying the cell surface of the cancer cell are being developed. *Vibro cholera* neuraminidase is such a substance which increases the antigenicity of the tumor cell by removing terminal sialic acid groups from cell surface. Such stripping unmasks previously inhibited membrane antigens.[14] Diverse antigens are being used to skin test cancer patients and these skin tests are being correlated with *in vitro* analyses of the patient's lymphocytes. We have been participating in such studies with the National Cancer Institute. It is hoped from a reading of such skin tests that relationships can be defined between the patient's immunologic response and how they are controlling their cancer.

Probably the most popular ongoing forms of immunotherapy utilize BCG, or bacille Calmette-Guerin, in superficial

melanoma and the application of DNCB (Dinitrochlorobenzene) in superficial basal and squamous cell carcinomas of the skin. BCG with melanoma has been able to inhibit growth of tumor by mechanisms that are not entirely clear. Whether it is from nonspecific stimulation of lymphocytes or converting that population of peripheral lymphocytes into a more active form remains vague. The sad portion of the BCG and melanoma story is that metastases in the life threatening sites, such as lung, liver, brain, have shown no measurable changes.[15] Kline has shown a very similar response rate in patients with basal and squamous cell carcinomas of the skin using repeat topical injections of DNCB, but again with extensive invasion of the cancer, the technique was not successful.[16]

Further developments in immunology may give us scientific tools for accurately measuring that patient who is afflicted with cancer despite total absence of any findings by current conventional diagnostic maneuevers. Immunologic techniques have already in colon cancer given us a new tool for following the patient postoperatively. During the past twenty-five years there has been tremendous progress in tumor immunology. If this progress should continue over the next twenty-five years, diagnostic and therapeutic techniques should be available to eliminate cancer as the major public health problem it is today.

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President's Pages



You Can Help Clean Up Politics

One of the most popular questions floating around the doctor's lounge or the 19th hole these days is, "Why doesn't someone clean up that mess in Washington (or Columbia)?" If you are unhappy with your representatives in Columbia or Washington or in any office on any level of government, now is the time to make sure that you can do something about it. There is an old saying that voters can get government as good as they demand, but they usually get government as poor as they will tolerate. While serving as Governor of Texas, Allan Shivers once declared, "You often hear people say that politics is a dirty business and they will have nothing to do with it for that reason. If it is a dirty business, isn't the real dirt on the hands of those citizens who refuse to spend the time and effort necessary to clean it up?"

During July and also this November you will again be given a privilege which many millions of people on this earth do not enjoy and perhaps never will enjoy. This is the right to pick the men and women who will govern you at a local and a state level. At this point someone always says, "What difference does one vote make?" A little research into the past will show exactly how much difference one vote can make. Fifty-one years ago the leaders of a ridiculous little Nazi party (at least everyone thought it was ridiculous at that time) met in a Munich beer hall, and by a single vote they elected their leader. One little vote could have changed history for the better and prevented World War II, because they couldn't have made a worse choice than Adolf Hitler! In 1645 Oliver Cromwell became dictator of England by a vote of 91 to 90 in the English Parliament. Four years later his chief rival Charles I was executed after a tribunal of judges voted for his death by a vote of 68 to 67. Thomas Jefferson was elected President in 1800 after an electoral tie with Aaron Burr by one vote in Congress. Rutherford B. Hayes was elected President of the United States in 1876 by 185 electoral votes to 184. Andrew Johnson escaped impeachment in 1868 by a single Senator's vote. Did you know that it was only by one vote that we speak English today instead of German? During the American Revolution, anti-British sentiment rose so high that a bill was presented to Congress to abolish English as the official language and adopt German. This bill was defeated by only one vote. Many years ago in Massachusetts a man by the name of Marcus Morton beat his opponent for the office of governor by 51,034 to 51,033 votes. Even as recently as 1960 John Kennedy beat Richard Nixon by a margin of less than one vote per precinct.

At our recent AMA convention in Chicago, Max Parrott beat Richard Wilbur for President-elect by a vote of 121 to 119. The ballots of three supposedly intelligent doctors had to be thrown out because they were turned in unmarked.

Cleaning up politics involves a great deal more than merely casting an intelligent ballot on election day. If you are faced on election day with the necessity of choosing "the lesser of two evils" in any race, you ought to go away wondering if there isn't some better person you might have helped persuade to run. Most of us are content to leave these matters to others—usually the political pro—and forfeit our valuable right to exercise gentle persuasion in getting honest well qualified citizens on the ballot. A great many people in that category may never give any serious consideration to running for the legislature or any other office simply because no one asked them to do so. Others who might make outstanding lawmakers may avoid legislative races because they have erroneous ideas of the financial sacrifices involved. Such erroneous ideas generally are fostered by incumbents who are claiming they are losing money hand over fist by serving the legislature or other offices, but still all but break their necks trying to get re-elected. While it is true that a great many successful people could afford to spend the time necessary to serve in public office under present conditions, many of them may not be able to afford the time and expense that must be spent in campaigning for the job. But if enough solid citizens who are willing to back up their words with hard work and campaign contributions urge them to run and offer to help, many of these people could be persuaded to sacrifice some of their time for public service. This is what it really takes to make our republic work.

Meanwhile, make sure you are at the polls this month and in November. Perhaps your vote might not be crucial, but on the other hand it might mean victory or defeat for the person you desire in a certain office!

Donald G. Kilgore, Jr., M.D., President
South Carolina Medical Association

The Journal of the South Carolina Medical Association

50 YEARS AGO

July, 1924

Periodic health examination was the subject of prolonged editorial comment. The need for an antivenereal disease campaign was emphasized by a special committee.

Editorials

The Political "Odd Lotters"

As everyone familiar with the stock market knows, odd lots are blocks of less than 100 shares of stock. The small investor, unsophisticated and unfamiliar with the complete financial situation and unable to afford blocks of 100 shares or better, deals in "odd lots." It is a Wall Street maxim that the naive "odd lotter" usually makes the wrong choices. When the odd lotters are predominantly selling, the pros take this as a signal to buy, and vice versa. As a practicing "odd lotter" I can personally confirm that this type investor can usually be counted on to do the opposite of what should be done.

Can this financial pariah be found in the political field? It appears to me it can be found in the political activities of the medical profession. It seems that whenever we take a political position, it turns out to be wrong. Our stand on the Second Medical School is a case in point. Only a week after SCMA announced opposition to the Second Medical School, the Senate Appropriations Committee voted unanimously in favor of the Second Medical School. Perhaps the politicians can start using us as the financiers use the odd lotters, doing exactly the opposite of what we signal.

If we had only listened to the man in the street and the patient in our waiting room, we could have predicted the outcome of this question because, rightly or wrongly, the people are overwhelmingly in favor of a Second Medical School. I do not mean by this that we should necessarily take the popular or winning choice. We should always take the stand that we feel will provide the best medical care that the people of South Carolina can afford.

And I do not intend this editorial to be negative. There were at least two very favorable aspects of our (SCMA's) stand on the Second Medical School. In the first place, we stated our position on a controversial issue. We have started a practice that we must continue. Secondly, we made a hard and close decision that was very important to all of us, with staunch advocates on both sides. Thanks to the leadership of SCMA, we were able to make this decision without making enemies on either side or alienating either side.

So it looks like, although we did come out for what is apparently at this time the losing side, we did take a stand and we did it without disrupting our struggle towards our ultimate goal, better medical care for all South Carolinians!

EEK

SCMA COUNCIL ACTIVITIES MAY-JUNE 1974

Your very active and energetic Council met all day on Sunday, May 12, and early each morning thereafter for the duration of the 1974 Annual Meeting at Myrtle Beach. Among the most important activities of Council and the entire meeting were five highly significant addresses or discussions: 1) "Where We Stand," the SCMA Presidential Address by Dr. Harold Hope; 2) An address to Council by Dr. Malcolm Todd, President-Elect of AMA; 3) A discussion with Council by Mr. Lachlan Hyatt, Chairman of the Governor's Health Policy and Planning Council; 4) A stirring and inspiring address to the House of Delegates by Congressman Philip Crane of Illinois; and 5) A speech by Dr. Don Kilgore, SCMA President-Elect. Most of these landmark discussions are detailed elsewhere in this issue of JSCMA.

Treasurer Howard Stokes submitted his last financial report. After many years of yeoman service to SCMA, Dr. Stokes asked that he not be considered for Treasurer again. Every member of SCMA owes a great debt of gratitude to this fine gentleman for all that he has done for the Association. He will be missed. Unfortunately, this was a deficit year for SCMA, as we overspent nearly $40,000. Council has gone on record as favoring keeping spending within the limits of income.

Dr. Kenneth Owens reported that SOCPAC had experienced a drop in membership during the past year. Council fully supports the activities and function of SOCPAC, especially in this very important election year. Council voted to give SOCPAC some financial help and further agreed to urge each member of Council and other leaders in the state and county societies to become sustaining members of this worthy organization.

Mrs. Mary Anne Douglas, President of the Woman's Auxiliary to the SCMA was presented to Council. Under her able leadership, the Auxiliary has been quite effective this year. We are all proud of the Forum on Child Abuse, held in Columbia under the sponsorship of the Auxiliary. Later, Council expressed the opinion that all members of the Woman's Auxiliary should be wives or widows or SCMA members.

The Public Relations Committee reported that a contest for a new seal or logo for SCMA was to be initiated. Under the sponsorship of Pfizer and Robbins, a $500 prize will be awarded the winning design. A special Committee will be appointed to select the three best designs submitted, and final selection will be made by Council at the 1975 meeting.

Permanent Home Committee Chairman Tucker Weston reported bonds bearing about 8% interest will be issued for purchase by SCMA members to help finance the new Permanent Home. It was further reported that 1,160 members of SCMA are supporting the building program through the special dues program.

The Mediation Committee reported it had evaluated a complaint against a physician and found he had charged excessive fees. Expulsion of the physician from SCMA was considered but it was decided that full due process had not been afforded the accused, and that this action would be premature. The matter will be pursued. It will also be the subject of some editorial coverage at a later date.

On the motion of Dr. Hal Jameson, a fee schedule based on the 1964 California Relative Value Study approximating a $700 maximum schedule with an average of $7 per unit value was approved for an industrial medicine schedule.

The status of acupuncture was discussed, particularly because the presently effective legislation is somewhat unclear on several points. Council recommended that since the present state legislation stipulates that acupuncture constitutes the practice of medicine in South Carolina, the practice of acupuncture should be carried out by licensed physicians only.

A discussion on the licensing of foreign nurses was held at the request of Dr.

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Opinion & Dialogue

Is there a need for a drug compendium?

Government Health Official

Henry E. Simmons, M.D.
Deputy Assistant Secretary for Health
Department of Health, Education and Welfare



A drug compendium of the type I envision would fill a definite need for the practicing physician. Such a compendium would give him all the information necessary for using a drug intelligently, and it would do so in a clear, concise, convenient, objective and balanced fashion.

What a Compendium Should Contain

I believe the compendium should inform the doctor what a drug will do, when he should use it, for what type of patient, for how long, in what dose, what benefits his patient is likely to obtain, the risks involved, and cross-reactions with other drugs.

The information would be based on the package insert and have the same legal status. In fact, a complete compendium with complete and current information might even eliminate the necessity

Maker of Medicine

Joseph F. Sadusk, Jr., M.D.
Warner-Lambert Company



A drug compendium, or preferably compendia, should, I believe, be private, not federal, in sponsorship. They should contain comprehensive listings of drugs available for prescribing. They should be single, legibly printed volumes of reasonable size, updated quarterly or semiannually and completely revised every year.

Function of a Compendium

A compendium should furnish the following information on drugs in the following order: indications for use, side effects, adverse drug reactions, contraindications, drug interactions, drug dosage and the dosage forms marketed. Drug prices should not be included because they vary so widely and change rapidly.

No compendium should set forth drugs of choice or discuss relative efficacy. Such questions must be left for the practicing physician to decide, whether on the basis of the medical literature, his own clinical experience, advice of colleagues, information supplied by manufacturers, and so on.

Nor should a compendium undertake to educate the doctor on how to use drugs. Rather, it must be a reference source designed primarily to refresh his memory as to drugs he may not use regularly. It

fo a package insert in many in-
s nces. This would constitute a
s bstantial saving for the manu-
fa turer.

By a complete compendium, I
o not mean a volume of prohibi-
tie size. You don't need a book
d scribing 25,000 products with
a enormous amount of repetition.
R ther, drugs should be arranged
b class. Mutually applicable infor-
m tion would be provided, along
w h brief discussions pinpointing
d ferences in specific drugs of
th t class. Listings would be cross-
in lexed in a useful way.

C ier Available Documents as S urces of Information

Existing references such as
P R and the AMA Drug Evaluation
a obviously useful but they are
in omplete. Either they are not
c ss-referenced by generic name
a d do not group drugs with simi-
la characteristics, or they do not
li all the available and legally
m rketed drugs. And some of
th se omitted may be very useful.
On the other hand, drugs made by more than one supplier, tetracycline for example, may be fully described a dozen times in the same book.

While perhaps PDR could be rearranged and cross-indexed with generics included, and while the AMA Drug Evaluation might also be modified and expanded, I am not sure that the end result would have all the attributes required for a useful compendium. At the same time, you would run the risk of amassing a voluminous and unwieldy tome.

Should Editorial Comments Accompany the Listings?

Subjective judgments, in my opinion, have no place in a compendium. However, if there is substantial evidence based on a sound body of science concerning relative efficacy of several drugs, certainly that information should be included. The committee of experts compiling and editing a particular section would also have to assess and indicate instances where a meaningful difference between drugs is pertinent.

Sponsorship, Compilation and Editing

Producing a book like this would undoubtedly be difficult and demanding. It would obviously take a great deal of talent and expertise, and would require a varied and experienced group, ranging from writers and editors to highly skilled clinicians and pharmacologists. Style, format and clarity of language would play an important part in determining the usefulness of the book. And it should be updated periodically and completely revised annually.

I have no opinion whether the government or the private sector should sponsor and/or finance the compendium. What is most important is that the compendium be an authoritative, objective and useful source of information for the doctor to have at hand as a ready reference.

---

s ould in no way imply control over
t e practitioner's prerogatives.

I y Another Compendium?

A practicable, single-volume
c mpendium cannot, nor is it
n cessary to, include all drugs on
t e market today. From my prac-
t e of internal medicine for some
3 years, my experience as a con-
s ltant, and as a faculty member
o four or five medical schools, I
w uld estimate that a doctor uses
o ly 30 to 35 drugs regularly. The
1 72 Physicians' Desk Reference,
i cidentally, contained about
2 500 entries.

As to whether there should be
a federal compendium, in my opin-
io , as stated earlier, the answer is
e sy—there should *not* be one. The
p oposal assumes that existing
c mpendia are inadequate. We're
n t sure of that at all. Whatever its
i perfections, the present drug
in formation system in the U.S. is
o en, multifaceted, pluralistic and
e tensive. Good compendia exist,
a s well as other ample sources on
d ug therapy, ranging from journal
li erature through AMA Drug Evalu-
at ion to company materials. Not
al physicians may use such
so urces as often or as well as they
sh uld, but that is the fault of the
m an, not of the sources.

In any event, rather than produce another book, it makes much more sense to work on improving existing compendia, and perhaps they could, as knowledge advances, include more accumulated clinical data and experience, and more information on drug interactions and adverse reactions.

Implications of a Federal Compendium

Take a hard look at the implications of a federal compendium. It would have the force of law, virtually dictating what drugs to use and how to use them. In effect, it would be a regulatory document with legal or quasi-legal status, posing medical/legal problems similar to those the doctor may now encounter if and when he departs from the provisions of the package insert. A compendium under federal aegis would tend to restrict decisions on drug therapy to one orthodox level—a most dangerous trend for medicine.

New Compendium—A Medical Option

I detect no ground swell of initiative or support whatsoever for a federal compendium—or, for that matter, for a new compendium of any type. A 1969 PMA survey conducted by Opinion Research Corporation found that only 15 per cent of those physicians interviewed felt a new compendium was needed. And a large majority did not favor the involvement of the federal government if one were to be created, preferring instead a nongovernmental consortium.

Even if we come to a time when the medical profession itself opts for a new kind of compendium, it should be handled and financed, ideally, outside both government and industry. Final review and editorial authority could be delegated, say, to specialty bodies and medical societies—but above all, *not* the government.

Surely the health care system in the United States has far more vital matters to consider than the extensive cost and effort that would have to go into the preparation and maintenance of a new, monolithic compendium, and especially one bearing the imprimatur of the federal government.

Opinion & Dialogue

What is your opinion, doctor? We would welcome your comments.

The Pharmaceutical
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Washington, D.C. 20005





What does man have in common with Samson?

Neither man nor the gorilla can synthesize vitamin C. Interestingly, the slow loris, a primate much further down the evolutionary scale, can convert L-1,4-gulonolactone to ascorbic acid in its liver and presumably does not require an exogenous source of ascorbic acid.

Because man can neither synthesize vitamin C nor store most of the water soluble vitamins, these nutrients must be replenished continuously in order to maintain normal tissue levels.

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Foster Marshall, representing the Board of Nursing Examiners. It was noted that the present state law reads "the Examining Board *shall* issue a certificate which allows a nurse to work and then, at a later time, the nurse is examined and issued a license providing the qualifications of the nurse meet the qualifications required by the Board." Dr. Marshall contended that the word *shall* caused the difficulty as some foreign nurses were patently unprepared to practice their profession at our standards but that under present law, the Board was powerless to deny certification. Council voted to urge legislation to change "shall" to "may."

It has been tradition for SCMA to provide financial assistance to the Auxiliary at the rate of $1.00 per Auxiliary member. This year we helped only to the extent of $500. Council voted to support Auxiliary at the rate of $1.00 per Auxiliary member, no more, no less, for this year. The Treasurer will study the matter, make a later report to Council, and a definite and permanent policy will be adopted at that time.

The Insurance Committee requested appointment of a Broker of Record who, possessing the necessary expertise, would make a thorough study of the various programs of the Society and suggest any changes. This would not cost anything. This request was accepted.

Council expressed concern about patient confidentiality in testimony in court. Present state laws do not protect confidentiality adequately. A special committee with appropriate talent will be appointed to study and work with the Legislature on this matter.

Council made a special appeal to all members of SCMA to make every effort to attend the AMA Convention in Chicago. This is always important but is especially so this year when John Hawk can be elected to the Board of Trustees if we help him enough.

Council then considered another possible "bad apple" case. Because of misconduct alledged by members of a county medical society, a physician had his license revoked. Later he was granted a temporary license, and applied for reinstatement of hospital privileges. Medical staff of the hospital voted to deny privileges but was overruled by the Hospital Board of Trustees. All medical personnel were upset by this happening. Consideration of this matter will be continued, and a letter will be written to the Hospital Board of Trustees expressing our interest and concern.

The final session of this series of Council meetings was called to order by Dr. Donald Kilgore, President of the South Carolina Medical Association. Dr. Waitus Tanner was elected Chairman; Dr. J. D. Gilland was elected Vice Chairman; and Dr. Randolph Smoak was elected Clerk of Council. Council voted to meet each alternate month during the next year.

The financial position of the Association was then considered by the Council and the newly elected Treasurer, Dr. Lathem of Greenville. Dr. Lathem thought of the two available methods to balance the budget—increase income or decrease expenditures—that the latter method was preferable. A tighter control on commitment of funds was recommended and will be practiced. A painless and very beneficial method of increasing revenue is by acquiring new and additional members for SCMA. This should be the responsibility and commitment of every member of SCMA, but especially of all officers and leaders.

AT THE JUNE MEETING OF COUNCIL, the dominant theme was the appointment of responsible and active committee members, as our Society is only as strong as the committees. This highly important task was intrusted to the capable and judicious hands of our new President, Don Kilgore. Of special interest was the formation and appointment of several ad hoc committees to carry our several special missions designated by the President. These are: Long Range Planning Committee, a Redistricting Committee to provide more equitable representation on

the governing bodies of the Association, and a Membership Committee charged with enhancing the membership roles.

Council agreed to hold the 1975 meeting at The Landmark Motor Inn in Myrtle Beach on Sunday, May 4 to Wednesday, May 7, 1975. It was reported that for the 1974 meeting, 332 physicians registered and 130 guests and exhibiters registered. Receipts were $12,635, expenses were $15,260 with some bills still outstanding. Thus the deficit will be something over $2,625.

Financial support of SOCPAC remains somewhat anemic. As it now appears, SOCPAC will select about eight candidates and support them to the extent of about $500 each in the coming primary elections.

This is only a partial report on some of the many activities of Council that seemed most important to this observer and does not indicate the many discussions and deliberations necessary in taking the actions related. The Councilors, Officers, and Staff of the South Carolina Medical Association have worked long and hard on the behalf of the physicians of South Carolina. They have earned our thanks, our respect, and our cooperation and participation.

EEK

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WHERE WE STAND

SCMA Positions on Medical and Socio-Economic Subjects

HAROLD P. HOPE, SR., M.D.

To serve the interest of members and to function in the public interest, South Carolina Medical Association must set policies and take positions on current issues affecting the health care of South Carolinians. I hope that these policies can guide the activities of the South Carolina Medical Association in fulfilling its leadership role and its responsibility to the public.

Association members must be informed if they are to participate effectively in the affairs of their medical organization. To disseminate better understanding of SCMA activities, position papers on current issues should be developed and also publicized through the news media. This is subject to authorization by the Council of the Medical Association and the House of Delegates. These thoughts on where we stand on medical and health issues are a personal effort to record the current policy positions of the SCMA. As with any organization, SCMA policies are subject to timely revision.

ABORTION

The term abortion refers to any procedure performed primarily for the purpose of terminating a pregnancy. Today there is a wide divergence of opinion among lay persons and members of the medical profession on the subject of abortion. Is it ethical and moral for a woman to have an abortion if it is not strictly necessary for her physical or mental welfare? Is it ethical or moral for a physician to perform an abortion? Who has the right to make the decision? And at what point in the pregnancy? Although such questions remain unresolved for many, abortion laws—once considered inviolable—have been liberalized in a number of states. In recent years, though public and legal opinion have moved in the direction of making abortion decisions a matter between the physicians and patients, the issue is still often hotly debated. In January 1973, the United States Supreme Court lifted all restrictions on a woman's right to physician-performed abortion during the first three months of pregnancy, saying that during the first three months, the decision to have an abortion lies with the woman and her physician: the woman has a "right of privacy" in which the state cannot interfere. It added that the abortion decision in all its aspects is inherently and primarily a medical decision, and basic responsibility for it must rest with the physician. The court stressed that a physician cannot be required to perform an abortion against his judgment or moral principles. The Supreme Court decided that states may regulate the abortion procedure in ways reasonably related to maternal health beginning with the 4th month of pregnancy.

SCMA POSITION: The SCMA believes that abortion is a medical procedure governed by the medical practice act and, as such, is a matter between the patient and her physician. SCMA believes that abortion should be governed by medical standards of sound clinical judgment and informed patient consent according to the

merits of each individual case. As any other medical procedure, an abortion should not be performed if it would be detrimental to the best interest, physical or mental, of the patient.

SCMA strongly opposes any factor that might lead patients into the hands of criminal abortionists and therefore believes that abortions should be performed in hospitals approved either by the Joint Commission on Accreditation or licensed by the State of South Carolina. SCMA holds that no physician may be required to violate his own conscience by performing an abortion nor should any member of the health team be required to assist with an abortion nor should a hospital be required to permit an abortion in violation of moral principles to which it is dedicated.

The statement just made is taking into account the decision of the U.S. Supreme Court. However, the position of the SCMA still officially corresponds in general with the law adopted by the S. C. Legislature, subsequently overruled by the U.S. Supreme Court. S. C. law provided that abortions should be permitted in cases of incest, rape promptly reported, probability of a defective fetus, or the probability of severe mental or physical damage to the mother. Neither SCMA or South Carolina law has to date stated that the decision for an abortion is solely a matter between patient and physician.

ACUPUNCTURE

The renewed focus on attention on Mainland China during recent years has brought with it an interest in the practice of traditional Chinese Medicine, particularly acupuncture. This technique whose history dates back more than one thousand years involves insertion of thin needles into various points of the body and claims results as an anesthetic, as a means of relieving pain, or as a cure for various ailments. After the acupuncture needles which are about 3 inches long, are inserted one quarter to one inch into the skin, they are twisted, vibrated, or moved up and down depending on the treatment. Chinese practice teaches that there are up to one thousand acupuncture or sensitive points on the body's "Meridians" where two or more needles can be inserted to produce the desired results.

SCMA POSITION: SCMA has urged a scientific evaluation of acupuncture because of the intense interest in technique which may have potential value in the relief of pain. Acupuncture clinics are cropping up all over the country and the SCMA believes that acupuncture falls within the classification of the "practice of medicine." An opinion has been asked the Attorney General on legality of acupuncture clinics in practice in this state. SCMA has had a recent decision from the Attorney General that acupuncture is within the classification of practice of medicine and therefore cannot be performed except under the supervision of a licensed physician in South Carolina.

CHIROPRACTIC

Chiropractors disagree among -themselves on a definition of chiropractic. One group known as "straights" adheres basically to the rigid definition, holding that the sole route to restoration to health, no matter what department, is through manual manipulation of the spine. A second group known as the "mixers" advocates the use of such modalities as heat, light, water, electricity, vitamins, colonic irrigations, and other physical and mechanical adjuncts, in addition to spinal adjustments. Each group is represented by a national organization.

The chiropractic concept of disease is unsupported by scientific facts, and

causes of infections and other diseases cannot be explained by the chiropractic theory that all diseases are caused by "subluzation" (partial dislocation) in the spinal column. Many chiropractors claim to be able to cure everything from headache to cancer by spinal manipulation—although medical research has proved their claims impossible.

The Department of Health, Education, and Welfare notes, "irrespective of its theory, the scope and quality of chiropractic education do not prepare the practitioner to make an adequate diagnosis and provide appropriate treatment." Forty eight states impose licenses limitations on chiropractic, prohibiting chiropractors from prescribing drugs and performing surgery. Two other states, Louisiana and Mississippi, do not issue any limited licenses.

SCMA POSITION: SCMA has emphasized repeatedly that chiropractic is an unscientific cult and that its practitioners lack the training and background to diagnose and treat human disease. SCMA strongly disapproves of payment of Medicaid, Medicare, Workman's Compensation, Veterans Administration, and other funds to chiropractors, or state licensure of chiropractors since the SCMA feels that incompetent medical advice will do far more harm than good to our citizens.

CONFIDENTIALITY

From the earliest of times confidentiality between doctor and patient has been considered a sacred trust, an essential aspect of the patient-physician relationship. The Oath of Hippocrates (dating back more than 2000 years) states whatever, in connection with my professional practice, I see or hear in the life of men which ought not to be spoken of abroad, I will not divulge, as reckoning all such should be kept secret. Also Article 9 of the American Medical Association "Principles of Medical Ethics" deals with this matter of confidentiality.

However, in recent years—with the increase of third party financing mechanisms, computerized data banks, and the immense amount of detail information requested by government, insurance companies and employers—confidentiality of patient-physician communications in patients' medical records has been endangered.

SCMA POSITION: SCMA strongly opposes the unethical requirements by third parties that highly confidential medical information be submitted without the patient's fully-informed consent. Many bills have been introduced in the Legislature and in Congress to guarantee confidentiality of patients' medical records in a wide variety of circumstances. SCMA would like action from the insurance industry to minimize the amount of patient medical information necessary for insurance reports and to establish channels of handling this information within the insurance companies so that only the medical department of that company has access to it. SCMA would also like to emphasize that medical reports sometimes have been made known both directly and indirectly to employers to the possible detriment of patients. And it would be wise to insist on the use of medical information for only the evaluation of the specific insurance claim in question.

HEALTH IN THE UNITED STATES

The phrase "health care crisis" is frequently heard in reference to American Health Care. It appears with some regularity in political speeches and news media stories. It is true that improvements in the health care field are both needed and possible. Undoubtedly greater efficiency without loss of quality or even with increase in quality is possible in some aspects of health care. Better geographical

distribution of available health services particularly in urban areas and rural areas is needed. And various government health programs need improvement.

However, none of these factors constitutes "health care crisis." People are not waiting in vain for health care in hospitals, physician's offices and pharmacies. People are not dying in the streets of our cities for lack of health care. The United States does not have sky-rocketing mortality and morbidity rates. These are factors that really would constitute a true crisis—and they do not exist. The present crisis is financial not medical and is due to governmental meddling, not failure of the medical profession.

In comparing international health statistics, many components of the crisis theory point to comparisons of selected health statistics for the United States and some Western European countries. Our nation's infant mortality rates, they point out, are higher than in some of the smaller European nations, and our statistics for life expectancy are not as good.

But the fact is that comparing such health statistics does not measure the effectiveness or quality of a nation's health care system, nor does it provide an accurate picture of its state of health. For one thing, the relative position of a country in regard to health statistics depends on which statistics are chosen. For example, Sweden is cited for its low rate of infant mortality. But Sweden also leads most other nations in the world in its rates of death from such causes as pneumonia and stomach ulcers.

In regard to infant mortality statistics, the countries usually compared with the United States have small and relatively homogeneous populations while the United States is the melting pot of various races, cultures, and educational and economic attainments—all of which affect health. Furthermore, the various nations of the world use different bases for reports on their health statistics. In the United States, we count a birth as live if there is any immediate sign of life, while some countries require survival for a year for the birth to be considered live. If we consider areas of the world truly comparable to the United States—Western Europe as a whole or the Soviet Union—our infant mortality rate emerges as superior.

ROOT CAUSES OF POOR HEALTH

Environmental and socio-economic factors have a greater impact on a man's health than medicine alone does. Such causes of death as lung cancer, cirrhosis of the liver, homicide, suicide, and automobile accidents are significant factors in this nation's mortality rates. Lung cancer deaths could be cut drastically by a sharp reduction in cigarette smoking. Cirrhosis of the liver could be reduced by avoiding consumption of alcohol. Automobile accidents and death would decrease rapidly from better safety devices and stricter highway law enforcement and reduced speeds. None of these problems of society can be solved medically.

Similarly most studies of high infant mortality indicate that the causes are rooted in poverty, malnutrition, and lack of education. Infant mortality, in fact, correlates best with the level of education achieved by the mother. The relative spectacular drop in rates in infant mortality in this country in the recent past can be attributed in large part to the improvement in income and education from which many poor Americans have benefited since the mid 1960s.

In short, a major portion of America's health problems stem from such non-medical causes as poor housing, poor nutrition, inadequate income and education, and unhealthy life styles. Doctors can only treat disease, not the economic system. The medical profession cannot eliminate the root causes of these health problems. This calls for a massive effort on the part of the entire society, involving individuals

as well as local, state and federal governments.

Since comparing international health statistics is misleading, what is a good way to measure how effectively a health care system meets the needs of the people? We believe that the yardsticks by which good medical care can be measured most meaningfully are: general health, growth and development; improved life expectancies; eradication of infectious diseases and such contagious diseases as poliomyelitis, tuberculosis, typhoid fever, and tetanus; advances in medical and surgical technique with early detection, treatment and cure of heart disease, stomach ulcers, cancer, and other killer diseases. By all these standards medical care in this country excels.

SCMA POSITION: We do understand that there are many South Carolinians who are not getting proper health care, and we dedicate our profession to helping correct this situation. In addition to our general responsibility as the Medical Association of S. C. with it many obligations and responsibilities we have a new concept of Health Planning to work with in South Carolina.

South Carolina created a unique S. C. Health Policy and Planning Council, a central source of all state and federal health and human development funds to be meted out within the state by the Council in a more rational and manageable way. Thus, the state expects to keep closer tabs on its federal share, which is now roughly estimated at $75 to $150 million. The flow of federal monies through the Council may begin within a few months as soon as regulations are waived that require channeling funds directly to state agencies.

Governor John C. West, whose administration's number one priority is health care delivery, established the Council initially to manage about $40 million that the state recently approved for health. The offer to do the same for federal funds was approved by the Secretary of Health, Education and Welfare, who reportedly regards the Council as a demonstration project.

The Council is a step beyond state certification-of-need legislation, which many states have enacted to help allocate health resources where they are most needed, such as determining the location of hospitals.

The 20-member, consumer-majority council consists of a chairman, 10 health-care consumers, and 9 health-care providers, including physician heads of state health-related agencies and two physicians who are members of the South Carolina Medical Association.

The Council's mission is to establish health policy, set priorities, establish an investment schedule to achieve specific objectives, create a medical management information system, and develop a process to measure progress. The Council is expected to handle the gamut of health grants except for research grants, where expertise is considered lacking.

Already a survey is in progress to identify health resources and their achievements in an effort to eliminate duplications and overlaps and determine where programs gaps exist. The data will be used to quantitate health policy, to make it measurable, perhaps for the first time in the health field, according to Bob Johnson, Council Director.

Emphasis is on making health care accessible to all, and one of the first actions of the Council will be to assist with setting up a statewide system of family practice residencies. Essentially the Council will centralize funds and act as a subcontractor to state agencies.

When the monies are diverted to the Council, all requirements for public funds will have its prior approval before they are submitted to Washington, Atlanta, or the South Carolina General Assembly.

HEALTH MAINTENANCE ORGANIZATIONS AND PREPAID HEALTH PLANS

A Health Maintenance Organization, "HMO," or Prepaid Health Plan can be broadly defined as an organization that contracts to furnish a wide range of health services, both professional and institutional, for a specified population, and is paid in advance a fixed monthly or annual sum per person covered for such services.

Services may be provided either by the organization itself or by agreement with other providers. Basic services that must be provided are not fully determined, but must include physicians' services, inpatient hospital care, and some outpatient services. Under various definitions it may also include extended care facilities services, home health services, emergency care and preventive services.

An HMO may be sponsored by a wide variety of agencies, including hospitals, medical care foundations, medical schools, industry and insurance companies. While the total care is to be paid for on a capitation basis, individual providers need not necessarily be paid on this basis.

SCMA POSITION: The SCMA supports prepaid group practice plans as one part of a health delivery system which encourages competing forms of care in order to produce the most effective system for the patient. SCMA opposes an open-ended commitment to HMOs such as called for in Senate's HMO Bill S-14 and believes there is hazard in any delivery system dependent on long term, if not permanent, federal subsidy in order to exist. As stated, we support a pluralistic approach to the delivery of medical services. SCMA considers HMO one approach to the delivery of medical services. For certain population groups or residents of certain areas they may provide an alternative means of obtaining health care. However, their development must not be allowed to destroy traditional forms of private medical practice. Patients must continue to have a right to choose the

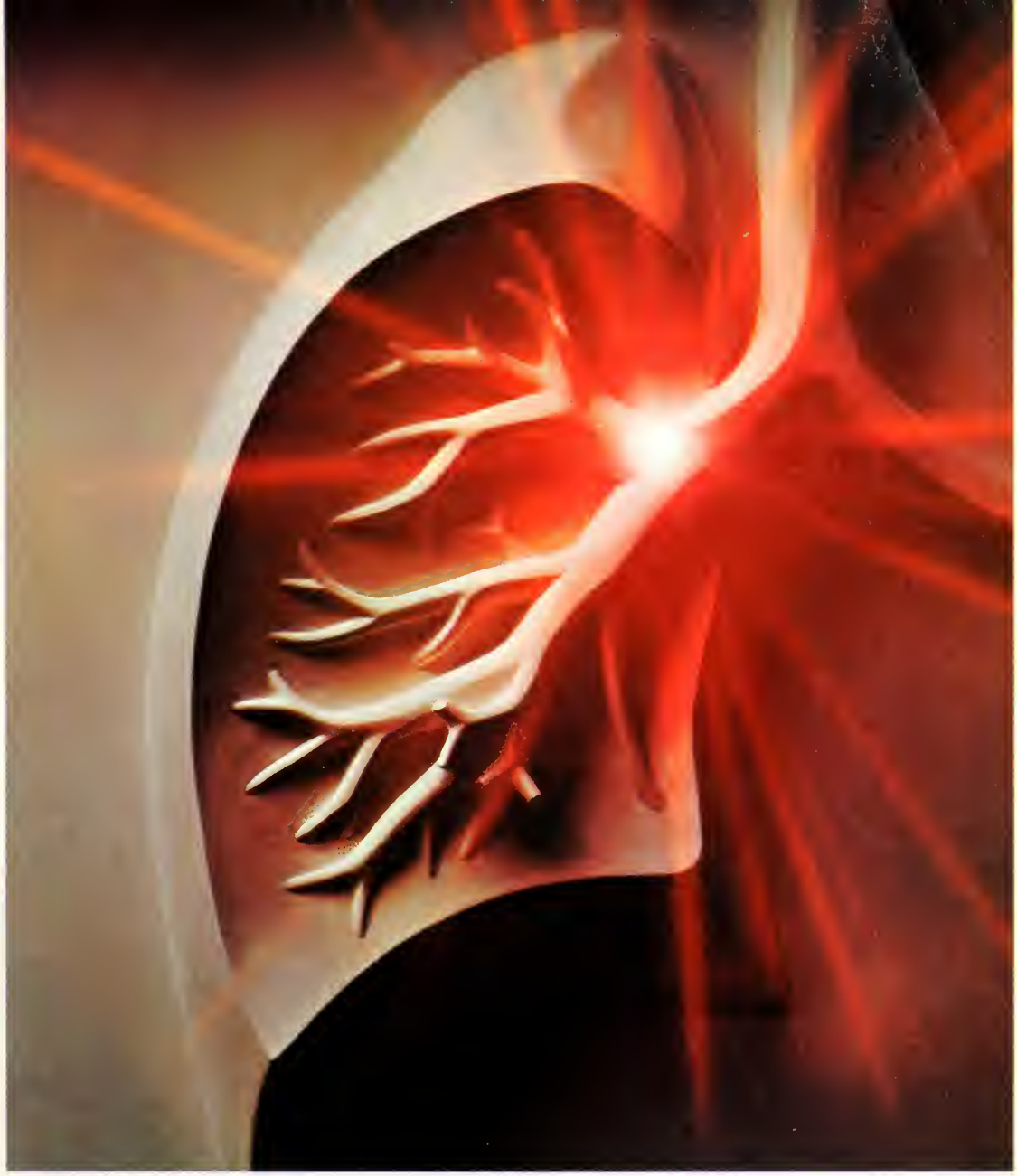
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Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)
Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.
Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)
All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.
Tetracyclines are present in milk of lactating women taking tetracyclines.
To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.
Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.
PRECAUTIONS. If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.
In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.
Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.
In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).
Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.
Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.
ADVERSE REACTIONS: **Gastrointestinal** (oral and parenteral forms), anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.
Skin: maculopapular and erythematous rashes, exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).
Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).
Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.
Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.
Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.
Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur.
USUAL DOSAGE. Adults—600 mg daily, divided into two or four equally spaced doses. More severe infections, an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea. In uncomplicated gonorrhea, when penicillin is contraindicated, 'Rondomycin' (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.
For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.
Eaton Agent pneumonia: 900 mg daily for six days.
Children—3 to 6 mg/lb/day divided into two to four equally spaced doses.
Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.
Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.
In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.
In streptococcal infections, a therapeutic dose should be given for at least 10 days.
SUPPLIED. 'Rondomycin' (methacycline HCl) 150 mg and 300 mg capsules, syrup containing 75 mg/5 cc methacycline HCl.

Before prescribing, consult package circular or latest PDR information.

Rev. 6/73

WALLACE PHARMACEUTICALS
CRANBURY, NEW JERSEY 08512



When the focus is on bronchitis due to susceptible strains of *H. influenzae* and pneumococci*

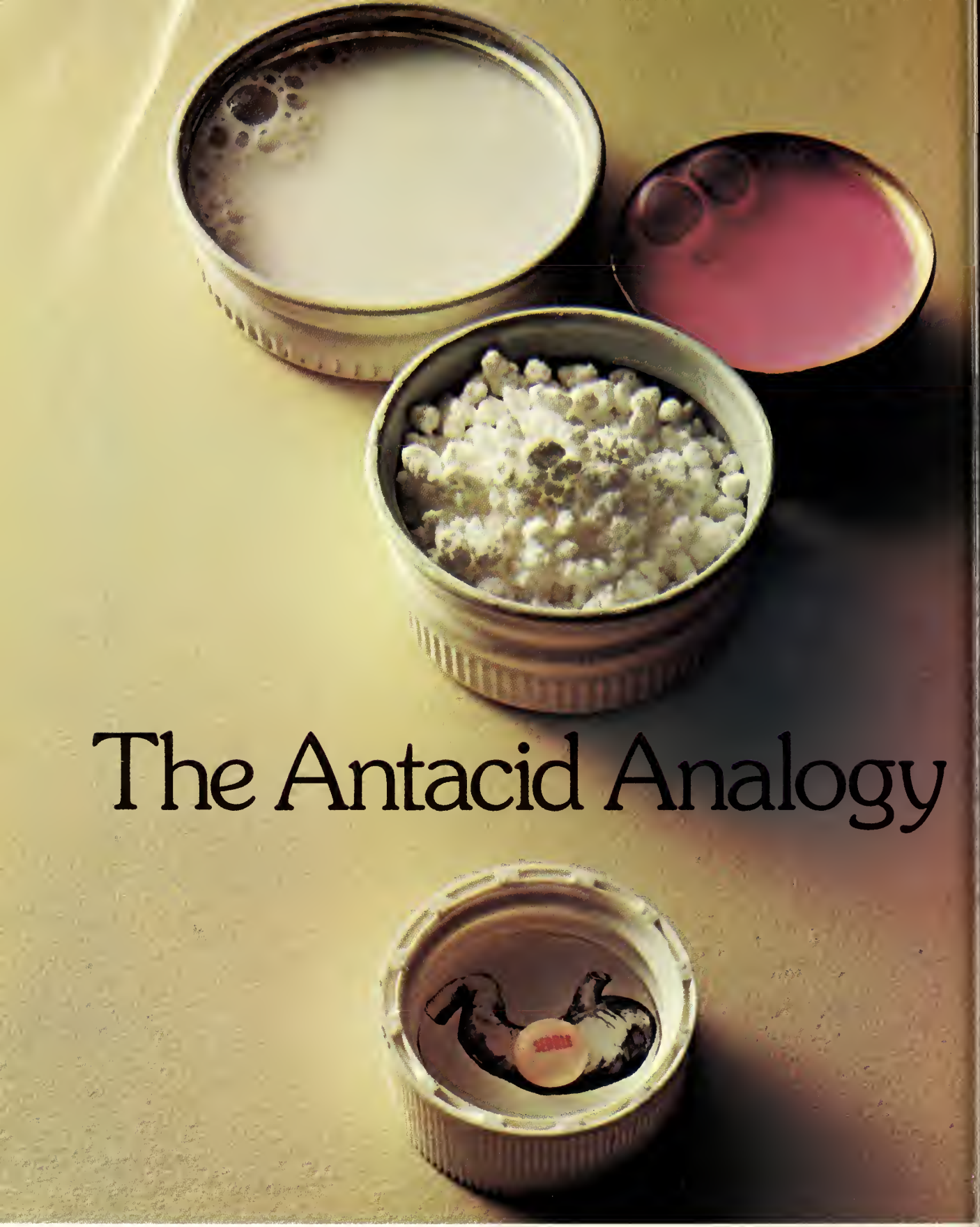
Rondomycin® 300 mg. Capsules

[methacycline HCl]

Delivers from the very first dose:

tudies show that after the first dose serum levels rapidly rise above minimum *in vitro* inhibitory concentrations

*Since many strains are known to be resistant, routine sensitivity testing is recommended.



The Antacid Analogy

Indications: Pro-Banthine is effective as adjunctive therapy in the treatment of peptic ulcer. Dosage must be adjusted to the individual.

Contraindications: Glaucoma, obstructive disease of the gastrointestinal tract, obstructive uropathy, intestinal atony, toxic megacolon, hiatal hernia associated with reflux esophagitis, or unstable cardiovascular adjustment in acute hemorrhage.

Warnings: Patients with severe cardiac disease should be given this medication with caution.

Fever and possibly heat stroke may occur due to anhidrosis.

In theory a curare-like action may occur, with loss of voluntary muscle control. For such patients prompt and continuing artificial respiratic should be applied until the drug effect has been exhausted.

Diarrhea in an ileostomy patient may indicate obstruction, and th possibility should be considered before administering Pro-Banthine.

Precautions: Since varying degrees of urinary hesitancy may be evidence by elderly males with prostatic hypertrophy, such patients should b advised to micturate at the time of taking the medication.

Overdosage should be avoided in patients severely ill with ulcerativ colitis.

Adverse Reactions: Varying degrees of drying of salivary secretions ma

Therapeutic comparisons in peptic ulcer.

Antacids have only one mode of action to relieve ulcer pain...

Pro-Banthine® has four.

and of propantheline bromide

Antacids:

Antacids relieve ulcer pain by neutralizing gastric acid. This action is relatively short-lived and they have no other mode of action.

Pro-Banthine:

Pro-Banthine suppresses gastric acid secretion. The antisecretory properties of Pro-Banthine are well established. By effectively blocking vagotonic impulses Pro-Banthine suppresses gastric secretion to reduce both total and free acid.

Pro-Banthine helps relieve pain. Pro-Banthine relieves ulcer pain by reducing gastric secretion and the motility and spasm of the gastrointestinal tract.

Pro-Banthine reduces acidity without subsequent acid rebound. The capacity of Pro-Banthine to reduce the secretion of total and free acid in the stomach has been demonstrated in scores of studies. None has demonstrated any significant evidence of acid rebound.

Pro-Banthine activity lasts about six hours. The effect of a single therapeutic dose (15 mg.) of Pro-Banthine lasts about six hours.* Pro-Banthine P.A.®, the prolonged-acting form, is active from 8 to 12 hours. Thus Pro-Banthine may be used to suppress acid, spasm, and pain around the clock, even during the sleeping hours when antacids, to be effective, must be taken almost hourly.

*Innes, I. R., and Nickerson, M., in Goodman, L. S., and Gilman, A. (editors): The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970, p. 537.

Pro-Banthine complements and enhances the action of antacids.

SEARLE **Searle & Co.**
San Juan, Puerto Rico 00936

Address medical inquiries to: G. D. Searle & Co.
Medical Department, Box 5110, Chicago, Ill. 60680

occur as well as mydriasis and blurred vision. In addition the following adverse reactions have been reported: nervousness, drowsiness, dizziness, insomnia, headache, loss of the sense of taste, nausea, vomiting, constipation, impotence and allergic dermatitis.

Dosage and Administration: The recommended daily dosage for adult oral therapy is one 15-mg. tablet with meals and two at bedtime. Subsequent adjustment to the patient's requirements and tolerance must be made.

Pro-Banthine P.A.—Each tablet of Pro-Banthine P.A. (propantheline bromide) contains 30 mg. of the drug in the form of sustained-release or timed-release beads; on ingestion about half of the drug is released within an hour and the remainder continuously as earlier increments are metabolized. Thus the result is even, high-level anticholinergic activity maintained all day and all night in most patients with only two tablets daily. Some patients may require one tablet every eight hours.

The contraindications and precautions applicable to Pro-Banthine 15 mg. should be observed.

How Supplied: Pro-Banthine is supplied as tablets of 15 and 7.5 mg., as prolonged-acting tablets of 30 mg. and, for parenteral use, as serum-type vials of 30 mg.

Before prescribing, see complete prescribing information in SK&F literature or *PDR*. The following is a brief summary.

Indications: Edema associated with congestive heart failure, cirrhosis of the liver, the nephrotic syndrome; steroid-induced and idiopathic edema; edema resistant to other diuretic therapy. Also, mild to moderate hypertension.

Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired. Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (>5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. Accordingly, check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide', check serum potassium frequently—both can cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe patients on 'Dyazide' regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles and Single Unit Packages of 100 capsules.

SK&F CO.
Carolina, P.R. 00630
Subsidiary of SmithKline Corporation

*Serum Potassium Level Drops During Long-Term Exercise, *Medical Tribune*, July 4, 1973.

†No implication that 'Dyazide' is useful in preventing K^+ loss in athletes is intended.

THE MARATHON WINNER LOSES SERUM POTASSIUM

as a result of intensive physical training.*



MANY HYPERTENSIVE PATIENTS LOSE POTASSIUM†

from therapy with potassium-wasting diuretics.

DYAZIDE®

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Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

SPARES THE HYPERTENSIVE PATIENT'S POTASSIUM AS IT LOWERS BLOOD PRESSURE.

method of receiving care they prefer. HMOs should be carefully evaluated in actual operation on a pilot basis before long term commitments are made. The SCMA will make available Peer and Utilization Review expertise in HMOs sponsored by the S. C. Health and Planning Council if the 4 principles necessary for participation by SCMA are met.

The 4 principles are:

1. Freedom of choice of physician.
2. Fee for service—payment for physician.
3. Administrative involvement by the S. C. Medical Care Foundation.
4. Any new plan should be combined with the proposed Health Services Extension Program for the needy.

NATIONAL HEALTH INSURANCE

The term National Health Insurance has been applied to a wide range of proposals dealing with the financing and delivery of health care in this country. Since these proposals differ greatly among themselves, the term National Health Insurance cannot be strictly defined. However, common to all these proposals is the use of some form of insurance, private or governmental to pool the financial risks of needed health services and the use of some form of federal taxation to assist in paying for the services or for the insurance.

In general terms the major current proposals can be classified either as private insurance approaches such as the American Medical Association Medicredit Plan or governmental insurance proposals such as the Kennedy-Griffiths AFL-CIO Bill. As would be expected from the use of the private insurance approach, the former proposals involve less compulsion and more choice than the social insurance proposals. The governmental insurance plans would mandate inclusion of the entire population: the private insurance proposals could include everyone, but individuals might choose not to participate. AMA Medicredit would cover the lower income group in full, with income tax incentives to all other persons to encourage the purchase of comprehensive basic health insurance coverage. Insurance premiums for protection against catastrophic health expenses would be paid in full, without regard to any income level. The social insurance plans would pay for virtually all services while the private insurance plans would set minimum basic benefits and allow a purchaser to select these as greater benefits at his option. Administration and financing of the proposals vary widely. The estimated cost differs accordingly from about $40 billion to more than $80 billion for the social insurance program to low and high cost estimates of $8 billion to $17 billion for Medicredit. Both types of proposals would provide financial access to the health care system but from opposite positions to the rights and responsibilities of the individual and government. The social insurance proposals would give almost total financial control of the health care system to the federal government and subordinate the rights and responsibilities of both patients and health care providers. Medicredit admits the existence of a crisis, and the necessity for and propriety of governmental involvement, and is therefore ultimately destructive of the free enterprise system of medical care.

SCMA POSITION: SCMA believes that physicians must assume the responsibility for making sure that patients get the kind of medical and health care they need and want. Patients must not be forced to an assembly line health care system that does not recognize that medical care, in the final analysis, is one sick patient treated by one physician he trusts. Consequently SCMA repeatedly has voiced a strong opposition to any policy of compulsory national health insurance. SCMA recognizes the individual as an important focus in the health care system and so

has developed a number of principles deemed essential to any program of national health insurance.

First: Adequate coverage for all. Everyone should be able to get the health care he needs; no one should lack health care because he cannot afford it.

Second: Complete freedom of choice. Freedom to join or not to join any plan. Freedom to choose ones own doctor and health facility. And freedom for the doctor to give sound medical treatment without bureaucratic interference. In addition, confidential physician-patient relationships must remain inviolate and without third party interference.

Third: Comprehensive health care. In addition to adequate standards for hospital and medical care, any plan should cover outpatient services, prescriptions, dentistry and nursing care. Catastrophic illnesses must be covered to avoid financial ruin for patients.

Fourth: Sensible financing. Financing medical care through the voluntary insurance approach is the means whereby individual freedom and responsibility can best be assured but prepaid closed panel plans should be available as an option (such as HMOs).

Fifth: Innovative care. No NHI plans should be locked to any one health care system. New ways to deliver care should be encouraged within a pluralistic system so doctors can meet the medical needs of the future.

Sixth: Pilot Projects. We have seen what upheaval can be caused by government health care programs implemented nationwide without prior testing to determine their effect both on the health of patients and on the soundness of health care systems. Therefore, we believe that experimental programs such as HMOs and others should be tried on a pilot basis. Demonstration and experimental programs should involve local medical societies and consumers.

Seventh: Professional Standards. Medical Professionals must establish standards for the care received by the patient and must monitor that care to evaluate both quality and appropriateness of charges. Professional medical organizations have the training and experience to do this; government does not. In addition SCMA believes that the same mechanism and standard of peer review must apply for all methods of medical care delivery. Peer Review Committees must be under the Control of the local medical society, and its decision must be binding. Further to insure quality care, institutions should be accredited and utilization review committees maintained. Peer review should deal with medical care, not hospital financing.

Eight: Knowledgeable planning. SCMA feels that practicing physicians must be represented effectively in decision making on all government boards and at all administrative levels involving medical care delivery.

SCMA believes these principles are medically sound and socially progressive. They encompass the realistic view of what is feasible in making health care available, without placing unrealistic burdens on the wage earners and businesses of the nation. Of all the national health insurance proposals currently being considered AMA Medicredit Plan comes closest to complying with SCMA principles.

This does not mean that SCMA advocates any National Health Insurance Program but should be prepared to help the Medical Profession if it does come.

PROFESSIONAL STANDARDS REVIEW ORGANIZATIONS

The Social Security Amendments were passed by Congress in 1972 including the Bennett Amendment that established Professional Standards Review Organizations (PSRO). These Peer Review mechanisms are designed to promote the effective,

efficient and economical delivery of health care services and to assure, through the application of suitable procedures of Professional Standards Review, that the services for which payment may be made (for Medicare, Medicaid, and Maternal and Child Health Programs) will conform to appropriate professional standards for the provision of health care. This is a quotation from the Bennett Amendment. The Secretary of Health, Education and Welfare is empowered to contract with qualified organizations to establish PSROs for a trial period of up to two years. After January 1, 1976, the Secretary may contract with other organizations, if he finds that local professional groups were unable or unwilling to perform the review function.

To be designated a PSRO, an organization must be deemed by HEW to be a qualified, non-profit, professional association with a voluntary membership of licensed doctors of medicine or osteopathy who are practicing medicine in the area and are not required to pay dues to any organized medical society as a condition of PSRO membership. The Medical Care Foundation organized by the S. C. Medical Association is such an organization in South Carolina.

The PSRO must determine whether services are medically necessary, quality meets professional recognized standards, and the location where services were given is appropriate. PSROs will have authority for advance determination over elective admissions to hospitals and long term care facilities and over-extended and costly treatments. The responsibilities initially may apply only to institutional care, but ultimately will apply to all health care under Medicare and Medicaid.

When Congress was considering the amendment to Social Security laws our Delegates to AMA realized that PSRO was a bad program that could not accomplish its objectives or promote effective, efficient, and economic delivery of health care services of proper quality. AMA House of Delegates agreed to work with the PSRO after it was made the law of the land.

With very important help from Congressman Crane who spoke to the House of Delegates of AMA in Anaheim, California, in December, the House of Delegates passed a resolution against the report that had been submitted by the Board of Trustees previously. The resolution read, "The considered opinion of the House of Delegates is that the best interest of the American people, our patients, would be served by the repeal of the present PSRO Legislation. It is also believed that this is consistent with our long standing policy in opposition to this legislation prior to passing."

SCMA POSITION: As with National Health Insurance our Medical Care Foundation does not advocate PSRO but is preparing to assume leadership when the time comes. It is reported that two other organizations in our state are prepared to seek the PSRO Role if our Foundation falters.

STERILIZATION

Any doctor has the ethical and legal right to insist on sterilization permission before accepting a patient if it is done at the initial visit (Adopted, House of Delegates, December 1973).

A motion passed by House of Delegates, December 1973, also stated that until such time a Physician has been formally accused and found guilty of a violation he shall be presumed to be innocent, and that the State Medical Association will stand behind that Physician in resisting any pressures brought against him by any third party prior to such trial and conviction.

PRESIDENT-ELECT'S ADDRESS BEFORE THE SCMA HOUSE OF DELEGATES MAY 13, 1974

Last year you all conferred the great honor of the Presidency of this Association upon me. Our custom of a year's delay between the election of a President and his assumption of office has both disadvantages and advantages. Perhaps the greatest disadvantage is that you have a year of agony to contemplate all the problems that may confront you during your term of office. If you had been thrust immediately into the office, you probably would have been too busy to have worried. However, there is a great advantage of having a year's time to think about what the Association has done in the past and what it might do in the future. A State Medical Association should be responsive to the wishes of its membership: it should provide leadership, it should make certain that all members are fairly represented in its governing bodies, and that any ultimate action taken by the Medical Association truly represents the will of the majority of the Association. Last year Harold Hope performed a great service by making sure that the committees of this Association were actively functioning and served a useful purpose. His recommendations have borne much fruit this year. I would like to suggest that this Medical Association badly needs one more standing committee—a Long Range Planning Committee. Dr. Lawrence Peter in his book, *The Peter Principle*, says, "If you don't know where you are going, you are liable to wind up somewhere else." This Association has grown too complex and is faced with too many problems to function properly without a committee to consider the goals and objectives towards which the Association should be moving. I would therefore recommend to the House of Delegates that a Long Range Planning Committee be formed, that it actively seek suggestions and ideas from the membership, that it present its recommendations for consideration by Council sometime in the fall of 1974 to be presented in turn at our mid-winter meeting. After this, it should continue to follow up on the goals and objectives presented and recommend new goals or alteration of old ones at each meeting of the House of Delegates.

Another portion of our Bylaws which in the passage of time and the alteration of conditions would seem to indicate a necessary change is to be found in Chapter II and Chapter IV of our Bylaws. At the present time 25 delegates constitute a quorum of the House of Delegates and a special meeting may be called by 25 delegates representing 10 component societies. These were entered into the Bylaws at a time when the House of Delegates did not have more than 50 or 60 members. Now that we have approximately 150 members of the House of Delegates, including those elected members of Council and the Past Presidents, I believe that these two provisions represent an opportunity for tyranny by a small determined minority. Sturgis's *Parlimentary Procedure* recommends that a quorum of a body be a simple majority of its members. At present, the Executive Council of the South Carolina Medical Association has a quorum of a simple majority of its members. I would therefore recommend that Chapter II and Section 4 of Chapter IV be amended so that a special session could be called by the President on petition of a simple majority of the House of Delegates and that a simple majority of Delegates constitute a quorum. When these items were originally inserted in the Bylaws, we only had one regular meeting of the House of Delegates a year; and the Executive Council met only once or twice yearly except at the annual meeting. Now the House of Delegates meets twice a year, and the

Executive Council meets 5 to 6 times yearly in addition to the annual meeting; and on the months when the full Council does not meet, the Executive Committee of the Council meets in session. Therefore, the membership has a much better opportunity to present its views.

A final recommendation after examination of the Bylaws regards Chapter XI concerning the Districts. I know that proposals to alter the Districts do not win any popularity contests. However, I believe that doctors are fair minded men; and if you look at the present Districts you will find a glaring misrepresentation. According to the Delegates listed in our program last year from these various counties, a doctor in Williamsburg County had 4 times as much representation on Council as a doctor in Oconee, and 3 times as much representation as a doctor in Beaufort or Aiken County. Last year there were 106 listed elected delegates; therefore on the average each district should have somewhere between 11 and 12 delegates. Only District 9 comprising Cherokee, Spartanburg and Union Counties hits this happy medium. District 1 and District 4 have more delegates than Districts 3, 5, 7, 8, and 9 combined. Districts 1, 2 and 4 have more delegates than the other six combined. Revising the districts is a thankless job. A few years ago a revision was proposed; and the House of Delegates completely ducked the issue. No method will come up that will please everybody. However, a semblance of fairness could be restored by the adoption of new redistricting plan, and I propose this for your serious consideration.

After my election last May, I wondered if the South Carolina Medical Association was doing all it should to provide proper services for its members. With this in mind, I wrote the Association offices of the 49 other states and the District of Columbia. I received replies from 38 of these organizations. In looking over the replies I believe that we in South Carolina do fairly well compared to other states. However, I found a number of interesting ideas which we might consider, and I would like to share them with you briefly.

1) Several states, including Louisiana, Texas, Massachusetts, and New York, have a medical library available for the use of their physicians. With the excellent loan service available from the Medical University of South Carolina to all physicians in this state, I do not believe that such a library on a purely medical subjects would be necessary. However, I do believe that a library concerning matters of medical practice and economics would be of valuable help to the members of this society, particularly the younger members whose experience and training in these aspects of medicine might not be complete. Certainly it is something worth considering.

2) The Pennsylvania Medical Society has a student loan program, first of all for needy students who require help in medical school, and secondly for financially needy children of former members of the Pennsylvania Medical Society. Another service which the Pennsylvania Medical Society offers is a mass purchasing plan for members of office supplies and equipment. Such a plan was considered recently by your Council.

3) Most medical societies that replied had an information brochure about their state medical society. We have made a start in this direction which we need to perfect in the months to come. Since 25 to 30% of the physicians practicing in this state are not members of the South Carolina Medical Association, we badly need something in writing to show them the benefits of being an Association member. One of the best brochures is put out by the Arkansas Medical Society and is broken down into four sections: a) What does the Society do for you? b) Information obtainable at the Society's office; c) What the Society does for the public; d) Things to do on opening a new practice. This last section is particularly helpful to a young physician just starting out. It

tells him how to obtain his state license, file for a federal narcotics and state narcotics registration number, how to obtain a social security employer's number, how to get professional liability insurance coverage without delay, how to obtain applications for staff memberships at the hospital of his choice in his area, how to record his license with the county clerk, how to obtain workman's compensation and insurance for employees, it encourages him to get a telephone answering service, and it contains many other useful bits of information. Minnesota, in co-operation with the AMA, sponsors a very active leadership and speaker seminar as well as seminars for young physicians on the management of their personal financial affairs. This is mentioned in their brochure to all new members.

4) One of the most interesting ideas is the joint medical-legal panel sponsored by the Medical Society of Virginia and the Virginia Bar Association. The purpose of this panel is to cut down on needless malpractice suits on one hand and to make possible the fair disposition of such claims against physicians that appear to be reasonably well founded on the other hand. Hearings before the panel may be obtained by submitting an application to the Executive Director of the Medical Society along with a fee of $75. The panels for hearing cases consist of three attorneys and three physicians to be selected from members of the Medical-Legal Committee of the Medical Society and the State Bar. After hearing the facts of the case, the panel deliberates in executive session and determines by majority vote of its members on secret ballot whether or not the action might reasonably constitute professional negligence. If the panel decides that such is the case, the Medical Society is obligated to furnish to the claimant from among its membership a list of three physicians fully qualified in the specialty field involved who will consult with the claimant and his attorney and will testify as expert witnesses at the trial of the case, if he is requested to do so, on payment of a reasonable fee. If the decision of the panel is in the negative, the attorney submitting an application and representing the claimant before the panel is hereafter precluded from preparing, filing, or participating in any court action against the physician involved on any of the issues heard by the panel. Physicians and lawyers have also published a booklet entitled "Standards and Principles Governing Lawyers and Physicians of the Commonwealth of Virginia" which serves as a guide for relations between the two professions.

5) Among the interesting minor services offered by the various state medical societies, Texas offers a Keogh plan with its own mutual fund. Louisiana devotes $2 of each members dues as a medical expense fund for attorneys which may be needed by its members. Oregon and Florida offer a discount on office printing services for their members. Hawaii offers a collection bureau and secretarial service for its members. Incidentally, Charlie Johnson and his staff are prepared to offer part-time executive secretarial services for the various state specialty societies and other medical organizations on a cost basis. Most of these organizations cannot afford a full time secretary. I believe this represents a long needed service for these organizations and will help tremendously in communications between the State Medical Association and the various specialty societies.

6) One of the most interesting programs sponsored by a state medical association is the California Medical Association Committee on Accreditation of Continuing Medical Education. In cooperation with the American Medical Association they have undertaken programs for certification of the completion of minimal requirements on continuing medical education to implement their concept of "a lifetime of learning."

In recent months one of the crusades endorsed by some of our more enthusiastic

colleagues across the nation has been the topic of re-licensure and re-certification. At the present time, a license to practice is still good for the lifetime of a physician in most states. With the exception of the American Board of Family Practice, all specialty boards issue lifetime certificates. However, this concept of lifetime licensure and certification appears to be changing. It is said that pressure from the U. S. Government through federal funding of health care services, pressure from private insurance, and pressure from the public will demand this if we don't do it ourselves. It is a subject that every physician in South Carolina needs to examine with considerable care.

Every good physician desires to maintain his professional knowledge and skill. He despises the occasional sloppy colleague who believes that he is "too busy" for reading or attendance at medical meetings and postgraduate seminars. Certainly every patient deserves to be cared for by a skilled physician whose medical knowledge is current.

The big question being debated is how should this re-licensure and re-certification be accomplished? Some physicians are urging re-examination for certification and licensure at periodic intervals. This sounds like a noble idea until you begin to look at the mechanics of it closely. According to the latest edition of the Directory of Medical Specialists, there are approximately 120,000 certified physicians. Approximately 3 times as many physicians are practicing in the United States. Assuming that you re-examine each of these specialists and re-license all physicians only once every five years, this means that approximately 100,000 physicians will be re-examined each year. Assuming the use of four days, including travel time, at approximately $500 to $700 for the registration and examination fees, hotel bills and travel expenses, this means an expenditure of approximately 400,000 physician days and a minimal cost of at least $50 million a year, not including the time and expenses of previous studies, the examiner's time, etc. This is during a period of our history when we supposedly have a shortage of physicians, and there is a severe criticism of the high cost of medical care. One alternative would appear to be the use of the AMA Physician's Recognition Award which can be obtained after documenting participation in continuing medical education programs as well as the minimal standard for attendance at postgraduate education by the different specialty boards. However, the number of programs accredited by the American Medical Association at the present time is somewhat limited. For this reason I believe that all programs sponsored by the South Carolina Medical Association should try for accreditation by the American Medical Association in order to help the physicians of this state obtain the AMA Recognition Award. The Medical Association should also encourage state specialty societies to qualify their postgraduate programs as well.

If the practicing physician in South Carolina does not wish to have periodic re-examination thrust upon him, he should make it known to the medical societies of which he is a member, and have them in turn make their views known to the American Board of Medical Specialties. One of my great personal misgivings about the destruction of the permanent licensure certification system is that it would give state and federal government an invitation to control physicians beyond any previous plan. Not even the socialistic medical utopias of Europe have been given this sort of life or death power over a doctor's practice. If re-licensure and re-certification come, we should be very very careful about how it is worded in order that we do not give government this weapon from our own hands.

It is also discouraging to see the medical profession singled out among all others for this process. No other profession to my knowledge even approaches medicine in the magnitude of its self criticism, post

graduate education, inspections, and periodic re-evaluations. How many lawyers, ministers, engineers, or dentists do you know that take anywhere close to the post-graduate courses and do the extensive reading that physicians do. Do you believe that Teddy Kennedy would ever volunteer to be re-examined on his knowledge of law? Do you think that any of the professors in our universities would submit to re-examination of their qualifications? I urge every physician to examine this question carefully and let the officers of his medical organizations know his views. If this weapon is handed to the government in the wrong way we doctors are being far more foolish than we have ever been previously, and will richly merit the servile fate that awaits us.

One of the most distressing situations in recent years is the abandonment of the South Carolina Medical Association and the American Medical Association by the doctors of our state. It kinda reminds me of the story I heard about two hunters who had shot a deer and started pulling it towards their car by the tail. Then another hunter came along and said, "I think it would be easier if you would pull it by the antlers." The hunters accepted this suggestion and very shortly one said to the other, "This *is* a heck of a lot easier!" The other man said, "Yes, but do you notice we are getting further and further away from the car?" I think that many of us are making the same response toward our state and AMA membership. Here we are, confronted with major proposals for sharp changes in the circumstances under which we practice medicine; and what are we doing? We are doing exactly the opposite of what we should be doing! Instead of coming together as a group where we might develop a concensus and where we might produce some sensible solutions, we are scattering to the winds. Instead of supporting an established well staffed mechanism that is available to us; many of us are climbing into individual shells and hoping that someone else will find the solution.

The AMA is by no means falling apart. After a drop in membership in 1970, the membership has stabilized. I believe that the AMA is a much sharper alert organization than it used to be. It is more flexible and more atuned to the realities of the present. After all, the AMA does represent *us;* and most important of all, the more of us that are in the AMA, the more representative it becomes. Last spring AMA members responded to a poll on major issues. Seventy-three percent of those answering recommended that the AMA continue to seek to retain the basic principles of private practice in any government health program and 79% expressed a preference for national health insurance concepts that would retain the basic principles of private practice. Even more significant was a scientific sampling of opinions on the same subject by non-AMA members. As you might expect, they were a little bit more liberal but only slightly. On the same issues 66 and 73 percent voted the same way that AMA members did. In the same way, we need a strong South Carolina Medical Association. Our State Medical Association has moved to a central location and is developing a staff to try to render the maximal service to all of its members. Many of our previous problems have been those of communication. Let us tell one another our problems, join hands together, and solve them!

The most urgent problem we as an Association need to face concretely is the supply and distribution of doctors in South Carolina. The Consortium Program may solve this problem. But other possible solutions need diligent examination by a Long Range Planning Committee. Over 95% of the problems facing the medical profession today originate from the fact that people have trouble getting medical care. If we do not devote our knowledge and time to solving this problem, we may get solutions from other people that will lower the standards of medical practice and, in

turn, harm the patient.

The most important reason for the doctors of our state to join together with doctors all over the United States is the monolithic unity of organized labor. Their political goals this year are to elect a minimum of twelve new representatives and six new senators who are favorable to labor's cause which will give them a "Veto-proof congress." The AFL-CIO Committee on Political Education [COPE] estimates that its backing to a presidential candidate is worth 10 million dollars. In the presidential campaign of 1972 Labor spent approximately $50 million on all political activities. A candidate favored by COPE can be picked up at any airport and brought to a meeting hall rented by COPE, speak to an audience arranged by COPE, and sleep in a room reserved by COPE. He can read the results of local COPE polls and get information on 18 million Americans stored in COPE computers. On election day, he can have the services of COPE to help turn out the voters. If necessary during his campaign, he can receive free of charge the services of political campaign management experts paid by COPE. It may interest you to know that in 1972, COPE's assistance to members of the House Judiciary Committee alone totaled $191,295 of which $30,293 went to Chairman Peter Rodino. Gentlemen, this is the opposition. Many of you have been unaware of it because labor unions have been relatively small in South Carolina; but they are growing, and growing rapidly. Many years ago a labor union leader told me, "You doctors are too divided. If three of you were standing in the street and saw a 20 ton truck coming straight at you; you guys would argue about whether to jump to the right, jump to the left, or jump straight up in the air. As a result you would all get hit." Gentlemen, is this man right? Are we doctors the greedy, divided, unorganized prima donnas that the labor unions believe us to be and are counting on; or can we act like intelligent compassionate physicians and realize that in addition to medical knowledge we must also have political knowledge and act in a united way to preserve a medical system that is best for our patients; we must not inherit the failures of almost a hundred years of socialized medical care in Europe. The presidency of this Association entails great problems and responsibilities as well as honor. No man can carry these alone; and I ask humbly for your advice, your help, and your prayers. Thank you.

Donald G. Kilgore, Jr., M.D.

MALCOLM C. TODD, M.D., AMA PRESIDENT-ELECT, SPEAKS TO COUNCIL

At the opening of the South Carolina Medical Association 1974 Annual Meeting, May 12, SCMA Council was privileged to hear an address by AMA's President-Elect, Dr. Malcolm Todd, a Long Beach, California, surgeon.

Dr. Todd opened his talk by declaring that the AMA and State and Local Societies should work together to build up the reputation of the medical profession and he stressed the very positive accomplishments of the profession since the 1800's. One of the main problems at the present time, he feels, is the third party inroad against the free enterprise system. He stated that today government inroads must be resisted, that the profession was doing a very good job on peer review, and that he resented the government coming in and telling the physician what to do. He stressed that the medical profession will cooperate with the government, but will not work for the government. The government is more concerned about cost control and the physician is more concerned about quality control. Medicare and Medicaid costs have escalated over the past few years and Dr. Todd feels that the Federal Government has been one of the major reasons for higher medical costs. He stated that while most physicians want a repeal of the PSRO law, in order to reach a satisfactory solution to this problem, the medical profession should support the AMA in its efforts to develop amendments to the law. The AMA has nineteen amendments ready to be introduced into the legislature on the PSRO law. As of May 10th, there were 60 Congressmen and 4 Senators who were willing to lend their support for repeal of PSRO. In order to accomplish repeal there must be 150 to 160 who would support a repeal movement. Eleven states have called for repeal of PSRO with Louisiana, Nebraska, and Indiana being the leaders. Dr. Todd said that there are presently fifty PSRO contracts ready to be made, and that the first contract is to be awarded to Pennsylvania. He said many associations purport to support repeal while at the same time applying for contracts.

While he acknowledges a shortage of doctors in some fields now, he feels that there will not be a shortage in the very near future. The 114 medical schools in the country took in 15,000 freshmen this year and this may eliminate the surplus. The problem here is in encouraging doctors to practice in the rural areas, and in encouraging them to specialize in fields that are not overcrowded, particularly Family Practice and General Practice. Dr. Todd complimented the physicians on the South Carolina Family Practice Program and stated that South Carolina is a leader in this area.

Dr. Todd feels that the AMA should take a very definite stand against the HMO. Currently, there are 1400 HMOs in the country and 300,000 physicians are working for the HMOs. He feels that the citizens do not want this type of health care as it eliminates free choice. He feels that physicians should declare that they will not practice under HMOs as they allow for the establishment of state-wide czars of medical practice of the dictatorial type.

He would like to see Federal health legislation delayed as long as possible in order to allow more time for development of better voluntary programs eliminating the need for compulsory programs. He feels, however, that there will be some form of National Health Insurance passed and it will probably be implemented by mid-1976. He hopes that it will provide for catastrophic coverage and that it will be linked in with a basic contract with minimal standards of benefits.

LACHLAN L. HYATT SPEAKS ON GOVERNOR'S HEALTH POLICY AND PLANNING COUNCIL

Mr. Lachlan L. Hyatt, Chairman of the Governor's Health Policy and Planning Council in South Carolina, met with SCMA Council on Sunday, May 12, 1974. He commented briefly on the make-up of the Health Policy and Planning Council and said that it will be expanded from 19 members to 23. The four additions will come from the South Carolina Legislature, two members of the House and two Senators.

He stated that there is in excess of $300,000 in public funds in South Carolina allocated for health care, when state, federal and local funds are combined, and that he and the Health Council are very much concerned about accountability. One of the major efforts of the Council will be to identify areas of wasted dollars and put them to work. He said that sooner or later "we are going to have to bite the bullet" and move funds from one department to another depending upon where the need is greatest.

He also emphasized that he is very much in favor of the Health Council receiving the benefit of advice from the medical profession and that the Health Council solicits the cooperation and advice of the Medical Association. In order to pass good health legislation, they must have adequate input from the physicians. He feels the SCMA can be of great assistance to the Council. Mr. Hyatt asked the SCMA to designate their own people to work on the Health Policy and Planning Council and stressed that their input was very much desired and needed.

On the subject of a second medical school, Mr. Hyatt emphasized the fact that it would be tragic if anything happened in South Carolina that would diminish the development of the Medical University of South Carolina and that the building of a second medical school would in no way cause State funds to be withheld from MUSC. He also said that all federal funds which are to be furnished for the second medical school should be identified and committed. Only on this basis should a second medical school be considered.

Mr. Hyatt said that he would like to see a member of the medical profession appointed to the Manpower Survey Committee. He wants to involve all health care areas, doctors, nurses, pharmacists, and all medical and support personnel in providing input to the Health Council. In response to a question regarding work being done by the State on manpower licensure, Mr. Hyatt stated that they were now trying only to identify the areas of manpower shortage, as to which field it is in; doctors by specialty and support personnel. Mr. Hyatt emphasized that the State is not concerned with licensure; the beginning stages of this survey are involved simply with who is practicing where and with what personnel.

WOMAN'S AUXILIARY
TO THE
SOUTH CAROLINA MEDICAL ASSOCIATION

Greetings from the Woman's Auxiliary to the South Carolina Medical Association.

My first letter in the Journal will be directed more to the physicians, than to your wife. Please take five minutes out of your busy schedule to hear me out.

First, may I introduce myself? I had the privilege of meeting some of you at the Convention, some I haven't met. I am Billie Brady, President of the Woman's Auxiliary for 1974-1975. I am married to Wayne C. Brady, Orothpedic Surgeon, practicing in Greenville. We have four children: Debbie, a graduate student in Speech Pathology at the University of Georgia; David, a Sophomore at Erskine College; Susan, a Senior in high school; and Tommy, a Junior in high school.

Medical Auxiliary has been a part of my life for eighteen years, with ten on the state level.

Some of you may not be aware of all the tremendous work and contributions made by your wife, working in the Auxiliary on the county and state level. May I refer you to Mary Anne Douglas' report in the May issue of the South Carolina Medical Association Journal. You can read of the contributions made through our local Auxiliaries during the year. I would like to point out two outstanding ones: the one-day seminar on Child Abuse, followed by a three day workshop. Through AMA-ERF, over $12,000.00 was contributed to the Medical University of South Carolina.

Well, what does all of this have to do with you? I am appealing to you for your cooperation. You see, for your wife to be able to be a member of the Woman's Auxiliary, YOU first must be a member of the South Carolina Medical Association. If you live in a county that does not have an organized county Auxiliary, your wife could become a member-at-large, or better still, we would love to organize an Auxiliary in your county. So, I am appealing to you to please be sure and join the S. C. Medical Association. We want to be able to *keep* the members we now have, *bring back* the drop-outs, and enroll *new ones*. With an increased membership we can accomplish so much more. I am counting on each one of you to be sure your membership is up-to-date.

The Auxiliary stands ready at any time to assist with any project you may have, and we are always open to suggestions and requests from your Association.

Sincerely,
Billie Brady



MAJOR CHANGES IN STATE CONTROLLED SUBSTANCES ACT

An act, effective May 30, 1974, makes several significant changes in the South Carolina Controlled Substances Act. The more important changes are enumerated below.

1. PENTAZOCINE (TALWIN®) ADDED TO SCHEDULE II

A. An inventory of *all* dosage forms of Talwin on hand must be made *immediately,* and retained with other inventories of controlled substances.

B. Talwin prescriptions are non-refillable and must be filed on the separate Schedule II prescription file. The drug is subject to Schedule II security requirements.

C. Since Pentazocine (Talwin) has not as yet been federally controlled, *A SEPARATE RECORD OF TALWIN PURCHASES MUST BE MAINTAINED.* Federal order forms are not to be used.

D. Telephoned prescriptions for Talwin are not authorized, and a signed prescription must be on file prior to dispensing such prescription.

2. RENEWAL OF STATE CONTROLLED SUBSTANCES REGISTRATION

The following paragraph was added to Section 20 of the Act:

"(d) Any registrant who fails to renew his registration by October 31 of each calendar year shall be penalized in the amount of twenty-five dollars: provided that if the failure shall continue past December 31 of the calendar year, the registration shall be cancelled and no new application for registration shall be accepted by the Board until after six months have elapsed since such cancellation."

3. ADDITIONAL GROUNDS FOR REVOCATION AND SUSPENSION OF REGISTRATION were added to Section 23 of the Act.

"(c) The Board may suspend, deny, or revoke the registration of any registrant or applicant for the conviction of any felony or misdemeanor involving moral turpitude.

"(d) The Board may suspend, deny, or revoke the registration of any registrant or applicant for violation of any of the rules and regulations issued by the Board relating to controlled substances.

"(e) The Board may suspend, deny, or revoke the registration of any registrant or applicant if it finds that the security provided for the storage of controlled substances is inadequate to the extent that repeated diversions by theft have occurred."

4. CERTAIN RESTRICTIONS HAVE BEEN PLACED UPON THE DISPENSING AND prescribing of controlled substances.

A. Section 28 restricts any practitioner from dispensing or prescribing any Schedule II — Narcotic Controlled Substance for the purpose of maintaining addiction of a narcotic — dependent person outside a facility or program approved by the S. C. Methadone Council.

B. Practitioners are further restricted from dispensing or prescribing any controlled substance in any schedule outside a bona fide physician-patient relationship.

C. No practitioner shall dispense any controlled substance for any use other than that approved by the Food and Drug Administration unless an investigational new drug application has been filed with and approved by the federal agency and the Department of Health and Environmental Control.

All inquiries concerning these changes, or any other matter pertaining to controlled substances, should be directed to the S. C. Department of Health and Environmental Control, Narcotic and Drug Control Division, 2600 Bull Street, Columbia, S. C. 29201. Telephone 803/758-5562.

BULLETIN FROM THE S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

This is the time of year to increase the index of suspicion for Rocky Mountain Spotted Fever, also called tick typhus or American tick-borne spotted fever.

A particularly heavy tick population is anticipated in South Carolina this summmer due to the unusually mild winter which we experienced. The South Carolina Department of Health and Environmental Control (DHEC) has observed a significant increase in the incidence of Rocky Mountain Spotted Fever in the state during the past 11 years. The first cases are usually reported in early May, with the peak number of cases coming in August.

Physicians are asked to be on the alert for febrile illnesses which follow tick bites or exposure in tick-infested areas. When Rocky Mountain Spotted Fever is suspected, serological confirmation is available from the Department of Health and Environmental Control Laboratory at 2600 Bull Street in Columbia. All cases should be reported to the DHEC Division of Epidemiology via the local county health department.

Severe headache, listlessness, myalgia, sudden chill, rapid rise in temperature, and rash are characteristic symptoms of the disease and when a history of exposure to ticks is also present, the diagnosis is suggested. Symptoms may occur from two to twelve days after a person has been bitten by an infected tick. The distinctive rash usually appears on the extremities during the third day of the disease; early rash may resemble measles or other rash illnesses.

When diagnosed early, Rocky Mountain Spotted Fever can be treated successfully by broad-spectrum antibiotics, the drugs of choice being tetracycline or chloramphenicol. Vaccines are available, but due to the questionable efficacy of current vaccines and the low risk of contracting the disease, the vaccine is recommended only for special situations such as laboratory personnel working with *Rickettsia ricksettsii* and persons whose occupations result in repeated exposures to ticks in endemic areas.

Live ticks that are removed from persons or are collected elsewhere may be mailed to the following address to determine if the tick is infected with a ricksettsial organism:

Division of Vector Control
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

It is requested that all live ticks submitted be placed in a medicine vial containing a strip of paper towel moistened with one drop of water. Attached information should include date, locality, host, collector and telephone number of physician or patient, if the tick was attached to a person. The sender can expect a telephone reply if tests are positive.

Thirty-two cases of Rocky Mountain Spotted Fever were reported during 1973, including 3 fatal cases. The fatalities were one 47-year old woman and two young girls, one, six years of age, and the other, seven. Three-fourths of the cases reported occurred in the Piedmont or above the fall line.

The American dog tick, *Dermacentor variabilis*, is the most prevalent tick in South Carolina and a potential carrier of tick-borne typhus. Not all ticks are infected. Even in heavily-infested areas, only about one tick in twenty is infective and therefore, able to transmit Rocky Mountain Spotted Fever.

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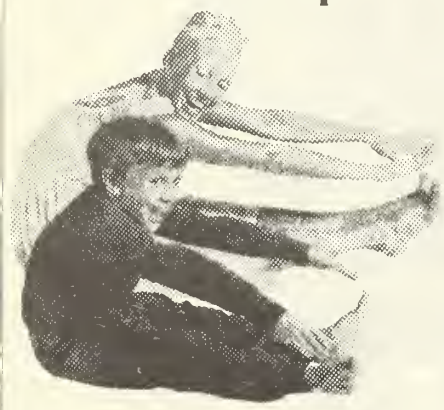
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For further information on this subject, the following references are provided:

1. Henry BW, *et al: Dis Nerv Syst 30*:675-679, Oct 1969.
2. Hollister LE, *et al: Arch Gen Psychiatry 24*:273-278, Mar 1971.
3. Claghorn J: *Psychosomatics 11*:438-441, Sept-Oct 1970.



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Subscription price: $6.00 in the U. S. ($7.00 per year, Foreign) Second Class Postage paid at Columbia, S. C. and at additional mailing offices

The views expressed in this publication are those of the writers and do not necessarily reflect the opinions of the South Carolina Medical Association

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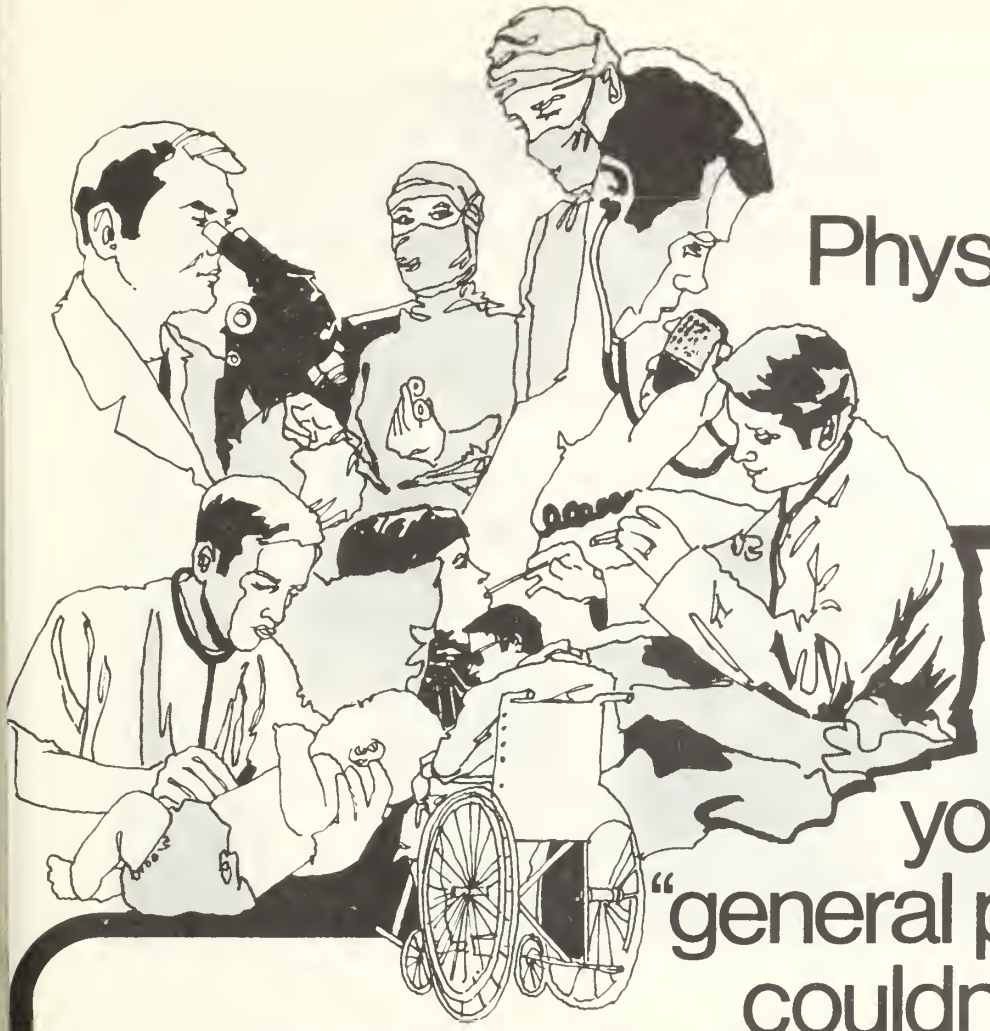
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SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 70 AUGUST, 1974 NUMBER 7

THE RIGHT TO TREATMENT: IS THERE NO BALM IN GILEAD?*

Is there no balm in Gilead; is there no physician there? Why then is not the health of the daughter of my people recovered?

Jeremiah 8:22
King James Version

LAYTON McCURDY, M.D.**

In the foreword of his recent book, Senator Edward Kennedy declares: "I am shocked to find that we in America have created a health care system that can be so callous to human suffering, so intent on high salaries and profits, and so unconcerned for the needs of our people."[1] Senator Kennedy is talking not merely of an abstract "system," he is talking about you and me. Remember—he chairs the important Health Subcommittee in the United States Senate. He goes further to say, "I believe good health care should be a right for all Americans. Health is so basic to man's ability to bring to fruition his opportunities as an American that each of us should guarantee the best possible health care to every American at a cost he can afford. Health care is not a luxury or an optional service we can do without."

More specifically, he raises in his book eight fundamental questions:

Should good health care cost an American everything he owns?
Should good health care mortgage a family's future?
Should Americans be denied good health care because they cannot pay?
Should Americans seek out health care or should health care seek out those in need?
Should Americans organize their health care or should the health care system organize itself?
Should Americans be left to find high quality care or should the health care system guarantee quality?
Should hospitals and doctors be both businessmen and healers?

*Presented at a joint meeting of the Georgia Psychiatric Association and the Medical Association of Atlanta, February 16, 1973.

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Should health insurance be big business?

Do not underestimate the force of Senator Kennedy's position. He is a spokesman for a widely-held sentiment. Like Jeremiah, he is serving as a powerful social critic, seeking to improve people's lives by attacking elements of the current scene.

This paper will briefly review the currently accepted concept that adequate health care is a fundamental civil right of each American; scan the historical development of one aspect of this right to treatment, *namely,* that in public psychiatric institutions; and offer some *opinions* about the scope of the dilemma in which medicine and medical education now find themselves.

The concern of government in protecting its citizenry from the spread of contagious diseases can be dated to 1789 with the formation of the U.S. Public Health Service. For the next 150 years its mission was to guard against unknowing contamination of the healthy by the sick. Municipal, county, state, and federal responsibliity evolved for selected kinds of disease. Tuberculosis and mental illness are examples. Responsibility was also for specific groups of people such as Indians, merchant sailors, and the indigent. In a legal sense, governments were permitted, not required, to provide these kinds of health care.

In the past decade the issue of permission began to shade toward requirement.

Health care as a fundamental civil right might be dated to Public Law 89-749, the Comprehensive Health Planning Act of 1966. In its declaration of purpose, this act states: "The Congress declares that the fulfillment of our national purpose depends on promoting and assuring the highest level of health attainable for every person, in an environment which contributes positively to healthful individual and family living."[2]

Now consider intervention by the third branch of government, the courts. Only recently have the courts undertaken to serve as judgmental bodies to determine the *quality* of health care.

One element of "the right to treatment" comes forth in three recent court decisions speaking to the *quality* of treatment in state mental institutions.

The first case to address itself directly to the right to treatment was Rouse vs. Cameron in 1966.[3] The petitioner claimed that he had been committed to a federal institution in Washington, D. C., where he was detained for three years, and that he was *not* receiving adequate psychiatric treatment. He had been tried and found not guilty, for reasons of insanity, of a misdemeanor that generally carries a one-year sentence. The initial review judge stated, "I don't think I have a right to consider whether he is getting enough treatment." In the Court of Appeals, Justice Bazelon, long a champion of mental health, stated "the purpose of involuntary hospitalization is treatment, not punishment. Absent treatment, the hospitalization is transformed into a penitentiary where one could be held indefinitely for no *convicted* offense."

Ultimately, the court reversed the lower court decision on a statutory issue, *not* on constitutional grounds. Although this now famous case avoided a decision on constitutional grounds, it marked the real dawn of the right to treatment issue in mental institutions. The strong language of the decision forewarned both the legal and medical professions of future decisions.

The next case dealing with the right to treatment was initiated against Massachusetts by John Nason, an indicted murderer who had never been to trial.[4] After spending five years in the Bridgewater State Hospital because of incompetency to stand trial, Nason petitioned for *habeas corpus* on the grounds that the hospital was so understaffed that adequate psychiatric treatment was impossible. The court appointed a special commissioner to investigate the conditions at Bridge-

water. The commissioner's report confirmed Nason's charges of chronic understaffing and inferior treatment. The court concluded that Nason's "confinement might be depriving him of liberty without due process of law." This *state* court decision introduced into the *committed* mental patient situation the issue of a "fundamental constitutional *right* to treatment." The grounds for this were due process and equal protection of the law.

As the courts began to recognize the constitutional grounds for adequate treatment, new cases began to emerge. Instead of seeking release for an involuntarily committed *individual* from a non-treatment situation, cases (beginning with Alabama's Wyatt vs. Stickney) argued for the implementation of adequate treatment for *all* residents of mental institutions and institutions for the retarded.[6] Thus, the right to treatment argument was expanded from a *habeas corpus* suit to a class action suit. The action against Alabama was precipitated by a state budget reduction resulting in the sudden firing of 99 hospital employees. The federal court hearing the case declared that the treatment was completely inadequate and indeed did not meet minimum standards for treatment of the mentally ill. With this finding, the U.S. District Court became the first *federal* court to establish unequivocally the constitutional right of all involuntarily institutionalized patients to receive adequate treatment.

To recap the sequence: In the first case, Bazelon had intimated the constitutional right, but had based the decision on a statutory issue. In Nason's case, a state court had declared the constitutional right of the *individual*. In the Alabama case, Federal District Judge Johnson said: "There was no possible legal or moral justification for the State of Alabama's failing to afford treatment to the several thousand patients who had been civilly committed for treatment purposes. To deprive any citizen of his or her liberty upon the altruistic theory that the confinement is for humane therapeutic reasons and then fail to provide adequate treatment violates the very fundamentals of due process." This opened the door to court actions against public mental institutions and has resulted in a wave of fierce legal activity. Suits have been filed all over the country. On March 29, 1972, a similar right to treatment suit was filed in Georgia on behalf of all residents in Georgia's six mental health and mental retardation facilities.[6] This class action suit alleged that the state is violating the Fifth, Eighth, and Fourteenth Amendments of the Constitution in the care of these institutional residents. The complaint demanded a precedent-setting court ruling that all institutional residents, *voluntary* or *involuntary*, mentally ill or retarded, have a *right* to adequate treatment. This litigation was subsequently dropped, but will likely reappear in the near future. If any *voluntary* patient has a constitutional right to adequate psychiatric treatment, when, then, does he not have the same right for any medical treatment? In my view, class action suits will soon occur demanding adequate comprehensive medical care. Against whom will the complaints be made? Who will provide the medical care?

At once, from every corner the American public *demands* from medicine greater numbers of doctors, distributed more usefully in rural areas; shorter training periods for these doctors and, at the same time, greater expertise in the profound advances made by medical science; and all of this at less cost.

At the same time, there is clear evidence that the next five years will see the development of powerful public accountability systems for what we do in our hospitals, in our offices, and in our clinics. Peer review is the beginning. Ideas of accountability systems extend to the extreme view of health care as a public utility to be dealt with in franchise manner much as we deal with electricity.[7]

One thing is clear: Modern society has

imposed a clear and specific mandate upon all of its health professions. We are the instruments through which health is to become a *civil right of all citizens.* This mandate derives in part from an increasingly acute public perception of the capabilities of medical science and technology. The "right to care" is becoming a slogan, viewed by many Americans as a salvation theme—a heady, but illusory guide out of our current dilemma.

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TRAUMATIC ABDOMINAL AORTO-CAVAL FISTULA
A CASE REPORT

H. CURTIS McGOWN, III, M. D.*
MIR OBAIDULLA KHAN, M.D.**

Arteriovenous fistulae have held the fascination of physicians and surgeons for many years, and this condition continues to present patients with unusual findings and with new and difficult problems in management.

An arteriovenous fistula involving the abdominal aorta and inferior vena cava should be of particular interest to surgeons because of the distinct symptomatology created by the larger vascular shunt[1] and because of the associated technical hazards and the precautions necessarily involved in its surgical correction.[2,3]

Abdominal aorto-caval fistulae are always acquired, resulting usually from the rupture of an aortic aneurysm into the vena cava [4-15] or as unfortunate complications of intervertebral disk surgery.[12,16,17] It is less commonly caused by penetrating wounds of the abdomen,[1,18-22] and it has been rarely reported due to neoplasm involving these structures.[23]

Aorto-caval fistulae due to all causes are relatively uncommon, and those due to penetrating abdominal wounds are rare.[1,18-22] Even isolated aortic or vena caval lacerations are frequently lethal injuries,[2,24-27] resulting in death at the scene of the accident. Survivors may arrive moribund at the emergency station and succumb to hemorrhagic shock in spite of heroic resuscitative efforts. Survival of simultaneous or concomitant injuries to the aorta and vena cava depends upon several factors,[24,25] and it is indeed fortuitous for the victim to develop an aorto-caval fistula under these circumstances.

When either operative or penetrating injury produces an aorto-caval communication, the signs of fistula may be manifest immediately but more often are delayed and insidious.[12] This delay in onset of symptoms may be due to an initial small size fistula or temporary occlusion of its opening by tissue, clot or fibrosis.[28] The onset, magnitude and variety of symptoms and findings will vary considerably according to the size and duration of the fistula and to the volume of shunted blood.[2,29,30]

The comparative differences in clinical behavior of patients with spontaneous aorto-caval fistulae and those of traumatic origin have been well classified and documented by Nennhaus and Javid.[1] The patient with aorto-caval fistula of traumatic origin may present months or even years after trauma with vague abdominal, back or chest pain and dyspnea. There is frequently tachycardia, low diastolic and wide pulse pressure. Cardiomegaly and signs of congestive heart failure are usually associated with larger shunts of long duration. A continuous palpable thrill over the abdomen and an associated audible bruit with a systolic accentuation are the most common and reliable signs of an aorto-caval fistula. Because of its location, Branham's sign (slowing of the pulse on occlusion of the fistula) is often demonstrated only at the time of laparotomy.[1]

In contrast to the traumatic aorto-caval fistula, the patient with the acute spontaneous aorto-caval fistula due to rupture

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of an aortic aneurysm usually presents severe and dramatic symptoms. These patients frequently have cardiac arrhythmias and signs of shock, with oliguria, uremia and cerebral insufficiency as part of the clinical picture. Marked venous hypertension may lead to massive edema of the buttocks and lower extremities, hematuria and even rectal bleeding.[1] A pulsating abdominal mass over which a thrill and bruit can be demonstrated is sufficient to make the diagnosis and lead to appropriate urgent surgical resection and graft replacement.

In traumatic arteriovenous fistulae with high output cardiac failure, increased blood volume is a frequent laboratory finding and can be anticipated. The diagnosis of traumatic aorto-caval fistula can usually be made when the appropriate history is coupled with findings previously mentioned, but arteriography may be required for precise identification and localization.[2] Such procedures are unnecessary and probably contraindicated in spontaneous cases with aneurysmal rupture.

The treatment of choice of traumatic aorto-caval fistula is excision of the fistula with reconstruction of continuity of the aorta and vena cava.[2,9] When direct reconstruction is not feasible because of local conditions, synthetic prosthetic graft material may be required.[12]

CASE REPORT

P. W. is a 32-year-old black male admitted as an ambulatory patient to the hospital emergency room on 2-7-71 with a recent stab wound to the epigastrium. He was mildly intoxicated but was cooperative and stable. His blood pressure was 140/60 with a pulse of 90. His pulse was described as small and collapsing but equal in all extremities. Examination of the chest revealed evidence of cardiac enlargement with the PMI in the seventh intercostal space and in the mid-axillary line of the left. Fine basilar rales were heard in both lung fields posteriorly. Just below the xyphoid there was a 2 cm. stab wound with entry into the epigastrium. There was tenderness and muscle guarding in this area, but there was no rebound tenderness elicited. There were no palpable masses or organomegaly present. An old, well-healed right paramedian laparotomy incision was apparent. A prominent continuous thrill was palpable over the upper abdomen, and a loud continuous murmur with systolic accentuation was present over the same site. This sound and vibration was transmitted to the lower chest. The remainder of the physical examination was unremarkable.

According to his past history, he had received gunshot wounds to the right side of the neck and abdomen in 1966 for which he was treated conservatively without incident, but laparotomy was performed for the abdominal wound. Review of his records and operative notes revealed that multiple small bowel perforations were found and closed. A retroperitoneal hematoma was described by the surgeon, but it was not explored or evacuated. The patient recovered from his surgery and was discharged from the hospital. Following his discharge, his only complaints for a while were those of weakness and malaise. For the past two years, however, he had been treated in an outpatient medical clinic. His complaints had been those of shortness of breath on minimal exertion, swelling of the feet and vague retrosternal pain. He was told that he had an enlarged heart of unknown etiology. His treatment had consisted of Digoxin, Furosemide and Nitroglycerin. The patient stated that since his original injury in 1966, he had been unable to return to his previous job involving heavy manual labor.

The routine admission, CBC, urinalysis and blood chemistries were within normal limits. The chest x-ray revealed an enlarged cardiac sil-



Figure 1. Chest x-ray on date of admission (2-7-71) demonstrating enlarged cardiac silhouette.

houette (see figure 1). The electrocardiogram suggested left ventricular and right atrial hypertrophy. Because of the patient's intoxication and seeming chronicity of his illness a limited minilaparotomy incision with exploration of the abdomen was performed shortly after admission. The epigastric stab wound was found not to penetrate the peritoneal cavity, and no recent intra-abdominal injury was detected. The suspected arteriovenous fistula was identified only by palpation, and no attempt was made to deal with the problem at that time.

Six days after injury on 2-13-71 an aortogram was performed by percutaneous transfemoral technique (see figures 3 and 4). A large aneurysmal sac between the aorta and vena cava and below the renal arteries was demonstrated with early filling and enlargement of the vena cava. Because of the significant shunting of blood to the vena cava, the distal aorta and iliac arteries were poorly visualized.

The patient's preoperative blood volume measured by the RISA Technique was 6400 cc. with a predicted normal value for his weight of 4861 cc. (see table I). With his congestive failure treated and well-compensated, the patient was taken to surgery on 2-19-71 and a generous laparotomy incision was performed by joining the two previous abdominal incisions. It was decided to



Figure 3. Retrograde femoral aortogram on 2-13-71 showing proximal filling of aorta, large aneurysmal sac and early filling of inferior vena cava.



Figure 4. Delayed film of aortogram on 2-13-71 demonstrating poor distal aortic runoff with increased diversion and concentration of dye in aneurysmal sac and displacement and dilatation of inferior vena cava.

approach this mass from the right; and therefore, the colon was mobilized and retracted to the left side of the abdomen, and the duodenum kocherized and retracted cephalad and to the left. The retroperitoneal space was entered, and umbilical tapes were passed above and below the vena cava and aorta in order to obtain proximal and distal control. A large (15 cm.) pulsating and purring aneurysm was found between the great vessels. The pulsation was transmitted to the vena cava and other venous structures, but was completely obliterated by finger occlusion of the small opening (1.5 cm.) into the aorta and with digital pressure of the fistula connection at the junction of the left renal vein with the vena cava on its posterior aspect. This occlusion was also accompanied by marked slowing of the pulse, demonstrating the so-called Branham's sign. The aneurysmal sac was thin-walled and tediously dissected from the surrounding structures. At the completion of the dissection, the venous connection was inadvertently entered, and temporary occlusion of the aorta and the vena cava became necessary in order to obtain hemostasis and to complete the resection. A lateral repair of the vena cava and aorta was accomplisd with arterial suture. The blood loss was monitored and 2000 cc. of whole blood replacement was required. Although seen on the x-ray, the missile was not

TABLE I
P. W. BLOOD VOLUME STUDIES (RISA)

	Predicted Blood Volume	4,861 cc.
2-18-71	Pre-operative Blood Volume	6,400 cc.
2-19-71	Post Surgical Blood Volume	3,488 cc.
2-22-71	3 Days Postoperative Blood Volume	4,160 cc.
3-29-71	6 Weeks Postoperative Blood Volume	4,800 cc.

found or removed and no further injuries were identified. Upon return from the recovery room his pulse was 80, full and regular. His blood pressure was 130/80. The patient exhibited marked diuresis for the first two postoperative days, and on the third postoperative day the blood volume was found to be 4160 cc. (see table I). The patient was maintained on Digitalis throughout his hospital course. His recovery was uneventful, and he was discharged home on his eleventh postoperative day.

Serial chest x-rays marked diminution in cardiac size (see figure 2), and Digitalis was discontinued after one month. His blood volume was again measured at this time and found to be 4800 cc. (see table I). The patient has resumed his work and most of his usual activities and remains free of symptoms to this date.

COMMENTS AND SUMMARY

It is obvious that this condition remained undetected and undiagnosed for an excessive period of time and serves to point out a weakness common to many of us in that "more errors are made from not looking than not knowing." Careful observation, examination and proper documentation and analysis of data should help us to minimize such errors.

A few comments relative to technique are appropriate. In retrospect, the use of intra-aortic balloon catheter tamponade of the fistulous opening as suggested by others[31,32] might have facilitated the dissection in this case and prevented unnecessary and excessive blood loss for the patient and anxiety for the surgical and anesthesia teams. Another technical point worthy of mention is that occlusion of the venous attachment of the fistulous tract by vascular clamps should be done with extreme caution because of the short, thin and friable nature of this structure. The pulsating false aneurysm produces a sawing effect when a sharp-toothed clamp is applied.

When retroperitoneal hematomas occur secondary to penetrating abdominal injuries and are encountered by the surgeon, it seems reasonable—though perhaps controversial—that these areas be explored with caution, evacuated and primary definitive repair of injured organs and/or vessels be performed when possible.[24,27]

After diagnosis, arteriovenous fistula remains a problem in localization and management. A case of traumatic aorto-caval fistula is presented that illustrates the pathophysiology and clinical manifestations of this condition that differ somewhat from the spontaneous aorto-caval fistula. The clinical course of patients with traumatic fistula is benign as compared to those with the spontaneous variety. These patients are generally younger, with good vessels, are usually operated on under elective circumstances and have fewer associated diseases. This case illustrates the reversible nature of the associated cardiac enlargement and congestive failure when treated successfully by surgical means.

With increasing acts of violence in-



Figure 2. Chest x-ray obtained 3-10-71, 19 days following closure of fistula demonstrating diminution in cardiac size.

volving penetrating abdominal injuries and an ever aging population with vascular disease and better recognition of vascular catastrophe syndromes, these lesions may be more commonplace. The development of advanced emergency medical services with optimum resuscitation and the general availability of trained vascular surgeons with improved diagnostic and surgical skills should help to reduce the morbidity and mortality with these conditions.

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INTRAVENTRICULAR MENINGIOMA OF THE BRAIN

GORDON T. WANNAMAKER, M.D.*

Meningiomas involving simultaneously both lateral ventricles and the third ventricle are rare. The patient, K.B., had such a condition. He was operated upon with removal of the tumors at the age of twelve. He has been followed for over twelve years and has shown no evidence of recurrent tumor. A search of the literature has failed to show a similar case.

Ladenheim 1963 reviewed 6,000 verified brain tumors at the Neurosurgical Clinic or the Serafinerlasarett, Sweden.[1] Fifteen established lateral ventricle meningiomas were recorded with an incident of 0.2 percent, about the same frequency as that reported by Busch.[2] Cushing and Eisenhardt reported an incidence of three intraventricular tumors in a series of 313 meningiomas of the brain.[3] One patient in Ladenheim's series had tumors in both lateral ventricles and the third ventricle. The patient expired on the first postop day. The mortality rate in the thirteen cases was 23 percent. Ladenheim reviewed the world literature and found eighty-four patients who had excisional surgery of lateral ventricle meningiomas with an over all mortality rate of 16 percent.[1]

While meningiomas most frequently occur on the convexity of the skull, attached to the meninges, intraventricular meningiomas are believed to arise from arachnoidal tissue carried along with the choroid plexus at the time of invagination into the ventricular system[1] or directly from the stroma of the choroid plexus which embryologically is derived from the same cell layer as the meninges.[4]

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CASE REPORT

K. B., a twelve year old school boy, was admitted to Roper Hospital, Charleston, South Carolina, on February 27, 1962, with a two year history of doing progressively poorer work in school. He had recently developed headaches and papilledema. He had also developed some emotional problems and had been followed in the Mental Health Clinic during the preceding eighteen months. Psychological evaluation had shown evidence of a behavioral problem but no organic psychosis. In the summer of 1961, because of headaches, he was found to have early evidence of papilledema. Neurological evaluation at that time was otherwise unremarkable and over the course of the next several months, the optic disc reverted to normal. In February of 1962 his headaches reoccurred. The examination shortly prior to admission showed one to two diopters of papilledema, again, there were no focal neurological signs.

Retinal photographs were taken. Repeat psychiatric studies failed to show any evidence of organic brain disease. There was no history of blackout spells or convulsions. He was admitted to the hospital for further evaluation.

On admission to the hospital, physical examination revealed the patient to be alert and rational and well-oriented as to time and place. He was cooperative with the examination. His pupils were equal and they reacted to light and accommodation. Extraocular muscle movements were intact. The optic discs appeared blurred with one to two diopters of papilledema. Visual fields were normal to confrontation. Reflexes were one plus bilaterally with no pathological reflexes being elicited. The general physical examination was unremarkable.

A spinal tap was done on the date of admission revealing a pressure of 390 millimeters of water. The closing pressure was 310 millimeters of water after removal of about 6 cc. of clear colorless

fluid. The fluid contained two lymphocytes per cc., and the total protein was 28 milligrams percent. The blood count and urinalysis were normal.

The following day a ventriculogram was performed. A large tumor mass containing flakes of calcium was noted to be occupying the central portion of the brain apparently filling the third ventricle and extending out into both lateral ventricles, more on the left.

It was decided to approach this large tumor in two stages, the first stage being a removal of the tumor from the right lateral ventricle and the third ventricle, then in a later stage, the tumor from the left lateral ventricle. The first stage operation was carried out on February 28, 1962. The pathological report was that of a meningioma, fibrous type containing whorled foci and psammoma bodies. It measured 3 x 1.5 x 1.5 cm. The first operation was well-tolerated and the second stage was carried out on March 12, 1962. The remaining tumor in the left lateral ventricle was removed through a transcortical incision anterior to the coronal suture extending down the left lateral ventricle. The tumor measured 3 x 4.5 x 5.5 cm. and weighed 45 gm. It was reduced in size by shelling out the interior of the tumor mass and slowly mobilizing it. This tumor was attached to the glomus of the choroid plexus, whereas the first tumor mass appeared to arrive from the roof of the third ventricle, filling the third ventricle, and extending through the foramen Monro into the right lateral ventricle.

Immediately following the second operation, the patient's course was somewhat stormy and characterized by frontal lobe type behavior and aphasia. By April 1, 1962, he was able to carry on a fairly good conversation and he walked with assistance. He had a mild right hemiparesis. He was discharged from the hospital on April 7, 1962, for further convalescence at home and he was to be followed at the office.

He showed progressive improvement. By the end of the summer, his speech was normal. He had good strength bilaterally, and he returned to school in September of 1962. His school work, however, showed little or no improvement. He continued to be followed at the Mental Health Clinic and was subsequently referred to Vocational Rehabilitation. Psychological testing in February of 1966 showed a full scale IQ on the WAIS of 86. There was little indication of an organic difficulty but prominent indication of disturbed ideation and poor reality contact. The diagnostic impression on psychological testing was that of an undifferentiated schizophrenic reaction in a moderate state of remission. The patient worked in the South Carolina Vocational Rehabilitation Work Shop for several years.

On the evening of November 30, 1970, he had his first grand mal seizure since surgery. He had another seizure the following morning and he was rehospitalized at Roper Hospital. Dilantin medication was increased from 100 mgs. twice a day to three times a day. Brain scan and skull X-ray films were negative for recurrent tumor. Neurological exam was unremarkable except for persistent slight hyperactivity of the deep tendon reflexes in the right extremities. There was no Babinski sign. By December 3, 1970, he was quite alert and feeling well. He was discharged from the hospital to continue on Dilantin medication 100 mgs. three times a day.

Following his discharge from the hospital, he has had several episodes of loss of consciousness without tonic or clonic activity. EEGs have been done every 6 months. He is presently being maintained on Dilantin 100 mgs. three times a day and has had no further grand mal type seizures. He continues to be enthusiastic about playing the piano and organ. He is quite calm and collected while doing this, though at other times he is rather nervous and tense. In addition to Dilantin, he is taking Mellaril 100 mgs. three times a day. He has been employed at a local grocery store for the past year. There is no evidence of recurrent tumor.

SUMMARY

Intraventricular meningiomas are rare tumors. As they occur in the hollow spaces of the brain, they produce no symptoms until their size becomes large enough to block the flow of spinal fluid producing increased intracranial pressure. A case history of a patient with intraventricular meningiomas involving both lateral ventricles and the third ventricle is presented. The tumors were removed twelve years ago and have shown no evidence of recurrence.

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X-RAY FILM OF THE MONTH

The Toothpaste Sign

E. Q. SEYMOUR, M.D.*

The basis for this is the viscus contrast material passing through the narrowed vesicle neck in a tubular shape. Its appearance is much like that of "toothpaste" being squeezed out of the tube. The term was coined by Green and Robinson.[1] The original description referred to the radiographic finding seen during retrograde urethrogram in post-operative vesicle neck contractures. Obviously, however, the sign can be produced by any form of vesicle neck narrowing.

In the X-ray film, there is noted contracture at the vesicle neck with a calcification in the adjacent prostatic gland. There is also a stricture in the proximal portion of the spongy urethra. The coiled appearance of the contrast material is readily seen. Hence the basis for the X-ray picture named "The Toothpaste Sign" of bladder neck contracture.

Occasionally, a peculiar coil-like configuration of increased density is seen entering the bladder at the time of a retrograde urethrogram. This is a reliable sign of bladder neck contracture.



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*Department of Radiology, Medical University of South Carolina, Charleston, S. C.

President's Pages



Since summer vacation time is still with us, I would like to part from the usual comment on serious medical matters and present three allegories for your leisurely consideration.

I. People Pollution

It's a peaceful scene. Clear water laps the beach that stretches up to the line of green trees. But listen! A vessel approaches, her tanned and hardy crew urging the captain on to the long awaited landfall. They shout and cheer. Columbus discovering America? Nope! It's Dr. Ike N. Spredcrud and his family discovering a clean beach on a South Carolina lake. Nowadays that can take more effort than finding a new world. To understand why, let's take a look at the Spredcruds as they splash ashore and triumphantly plant their flag, which in this case is a beer cooler. They claim this corner of the world only for the week-end; but they immediately begin to make it forever Spredcrud. First of all there is civic-spirited, square-shooting Doc Spredcrud and his loving wife, Mom Spredcrud, the stalwart of every concerned citizen group within fifty miles. Then there is Junior Spredcrud, young idealist of the Now Generation, presently reforming a college. Finally, there is silver-haired Granny Spredcrud, wise wearer of tennis shoes, first in the pioneer virtues and verities. All and all, a fine American family in the tradition of Norman Rockwell magazine covers and cheese dip commercials. As good citizens the Spredcruds are currently worried about the environment, sharing this fashionable anxiety with most of the populace and all the successful politicians. Doc has made several speeches against pollution and its detrimental effects on health. Mom has organized letter writing campaigns to demand that Congress do something about the shameful mess the ecology is in. Junior has participated in three marches and two teach-ins protesting the foul deeds of big business, which he holds directly responsible for the smelly state of the union. Grandma has made three formal complaints about the quality of the trash- pick-up and two regarding the effect of the 291 By-Pass on her azaleas. All are agreed that the dastardly villians who pollute must be dealt with severely.

But now let's take another look, two days later. The Spredcruds, tired but happy, have gone back home to fight in the popular war for the environment. The beach is still there—and so are signs of the Spredcruds' recent holiday. The beer cooler split a gasket during the fun, so Doc Spredcrud has left it on the beach to rot. A brace of discarded plastic oil bottles keep it company. Mom Spredcrud, who overestimated the family's appetite as usual, wound up with many leftovers, but this proved to be no problem for her—she just dumped them all as she left for home.

They lie there now, scattered across the sand, a tableau of rotting eggs, molded hamburger buns, and cartons of melted ice cream. The local ants, flies, and wasps are going into busines for themselves. Bread wrappers, burned aluminum foil, and a mustard jar roll gently to and fro in the surf. Old Doc, the wizard angler, had a good catch the first day; but after a conference with Mom, who declined to clean them, he tossed the fish aside. Now the fish are lying in state in the hot sun, and the green trees aren't all that's whispering in the breeze.

Junior and some contemporaries had gathered down at one end of the beach to establish a base for water skiing and plotting against the materialistic power structure. Their secrets are safe, but that is more than can be said for anybody who tries to walk down that way. The young idealists have left the scene spiked with broken bottles and punctuated with sharp edged cans. A broken bottle left in the sand, its shards pointing up, makes a maiming weapon more effective than the keenest punji stake the Viet Cong ever turned out. Junior didn't mean it, but that won't make the unwary wader's blood clot any faster.

Grandma? Well, she grew up in the wide open spaces, and one of those pioneer verities she goes by is letting the great outdoors take care of itself, since there is plenty more where that came from. Preserving the memories of this pleasant occasion with the Polaroid camera her thoughtful son gave her last Christmas, we have mute evidence that Granny will have at least forty fine pictures to treasure this winter from the number of carbon wrappers spread on the beach. Granny also brought along the paper so she could keep up with the latest outrages and obituaries. Having read it, she left it to the elements, which have broken it down into its component pages and festooned these on trees, bushes, and shoreline—the beach looks like a bad case of black and white measles.

The Spredcruds, rightly concerned about the pollution of the environment—by somebody else—have just given a textbook example of how it's done. Like hundreds of thousands of South Carolinians, they love nature, the soul-soothing combination of clean water and fresh air that the state's lakes offer them. But they express their love of nature by burying it in garbage. The Spredcruds aren't Big Business or Big Government or Big Anything; but they pollute with their leavings every South Carolina lake and outdoor recreation spot. This is people pollution, and in many ways it's the worst type, because it's the hardest to fight. No matter how many antipollution laws are passed, no matter how many sewage plants are built, no matter how much money is spent by industry on cleaning up effluent defilement of the environment, the evil will continue so long as average Americans like the Spredcruds keep doing their thing.

HEW experts say that each American now produces nearly a ton of trash and garbage in a year. But if they check some of the more popular South Carolina lakes, the experts might want to revise that estimate upward. The needless transformation of South Carolina's new man-made lakes into man-made eyesores seems a special kind of shame because it could so easily be prevented. The method for achieving this is not dramatic or exciting, and it does not cost much: if Doc Spredcrud would add to his speeches about pollution one short one to his family on their departure from home, if Mom Spredcrud would stuff waste paper in a litter bag, if Junior Spredcrud would begin his clean-up of the world with his own trail of trash, if Grandma Spredcrud would realize there really isn't any more great outdoors where that came from. Like the Spredcruds, too many of us find nature a delight, but leave it a dump.

II. Pierson's Ploy

This incident is alledged to have occurred at the January 1970 meeting of an Idaho Parent-Teacher's Association at a high school in one of its larger cities. Mr. Janus Pierson, a local college professor presented the following proposal at the meeting:

1. That the local high school initiate a program selecting the most talented boys in the school;

2. That rigorous performance tests be created, and pupils be encouraged to try to pass the test after school;

3. That a talent team be formed from these pupils who passed the test;

4. That high school staff members be paid extra to teach this group of talented boys after school;

5. That these boys be dressed in special uniforms with marks of identification so that they could be recognized while performing;

6. That the other district high schools be encouraged to develop similar talent teams to compete with each other;

7. That trophies, honors, and awards programs be developed to recognize these talented pupils.

Mr. Pierson, the father of a talented boy, then put his proposal into motion. The motion was seconded by Mrs. Pierson. The Chairman called for discussion which followed vigorously. "Undemocratic — Impossible — Too expensive — Make snobs of our children — Not fair to the other children," etc. Mr. Pierson ended the heated discussion with the following remarks, "I think you should all know that I was not describing a new program. We have been carrying on this very program at our high school for a number of years. We call it a football team!"

III. Show and Tell

There it stood in the doctor's parking lot in full glory — a gleaming new red Cadillac El Dorado; and just to make sure we all knew who owned it, there was a six-inch high sign by the license plates, front and back, that said, "M.D." I don't object to a fellow physician owning a Cadillac, even though I would rather put the difference between a Ford and a Cadillac in my kids' college education fund. I don't mind an M.D. sign on a car, although the only benefit seems to be an open invitation to narcotics addicts; and the caduceus has lost whatever distinction it ever had by its appearance on the cars of nurses, dentists, medical assistants, physiotherapists, pharmacists, etc. But when you put them both together, this character makes all the rest of us prime targets for the socializers. Maybe he didn't get it all out of his patients. Maybe he inherited it or married it. But when he makes an Onassis out of himself, there is only one source in his patients' minds. Their pocketbooks! They don't mind your earning a good living, provided it isn't too good, too soon. They figure you are entitled to a little show for your dough after long and faithful service. But by then, you are too mature to enjoy it. So be subtle, Doc!

Donald G. Kilgore, Jr., M.D., President
South Carolina Medical Association

Editorials

No Balm

Last month we looked at the medical care problem in South Carolina from the standpoint of the maldistribution of physicians. This month we consider the unsatisfied demands of the patient in "Is There No Balm in Gilead?" It is this latter aspect that may bear the graver consequences for our profession, for it is this condition which could lead to the demand for drastic change for, as McCurdy states in his report: "there is clear evidence that the next five years will see the development of public accountability systems for what we do in our hospitals, in our offices and in our clinics. Peer review is the beginning. Ideas of accountability systems extend to the extreme view of health care as a public utility to be dealt with in franchise manner much as we deal with electricity. One thing is clear: Modern society has imposed a clear and specific mandate upon all health professions. We are the instruments through which health care is to become a *civil right of all citizens.*"

Let me recreate two dramas that actually happened in my office this week (and every week very similar things happen).

Orthopedist: So you have been having pain in your chest and left shoulder when you take long walks or get excited? What does your doctor say about that?

Patient: My doctor says it sounds like angina but he hasn't done any tests or done anything about it! I sure would like to see a heart specialist.

O: I'll see if I can get you an appointment with a good heart specialist. Who would you like to see?

P: I sure would appreciate it. Can you get me an appointment with Dr. X. I've heard of him.

O: Just a minute, I'll see.

(a few minutes later, O. returns)

Dr. X said he couldn't see you for a year. Can I try someone else for you?

P: Please do!

Playlet No. 2

Orthopedist: That looks like just a minor sprain of your ankle, Mrs. J. Why didn't you just go to your family doctor about this? I am sure he could have handled this.

Mrs. J.: I have lived in Columbia a year and a half. I have tried every family doctor my friends have told me about and none of them will take my family as patients. They all say they already have more than they can handle.

O: Have you tried calling the Columbia Medical Society for help?

Mrs. J.: Yes, they were very nice, but they just gave me names of doctors I have already tried. I'd be glad to pay, of course.

O: I wish I could help you but I can't impose on my friends.

End of Dramas

Conclusion: The patients are searching for doctors but cannot find them. They are dissatisfied. That is their problem—a problem we must answer, for if we do not someone will. And that other someone will make a public utility of us unless we satisfy the public ourselves.

For as God proclaimed to Solomon in II Chronicles 7:14, "If my people shall humble themselves and turn from their wicked ways, then will I hear and will forgive their sins, and will heal the land."

Who shall humble themselves?

Who shall turn from their wicked ways?

Who shall heal the land?

It is up to us!

EEK

A Cheap Shot

The misfortune or ill health of others is not usually the cause for jest, but the following item, abbreviated from a feature in *The State* on July 11, demands some speculations:

"Kara Kennedy, 14-year old daughter of Sen. Edward M. Kennedy, was hospitalized with a *minor leg injury*. . . 'She was in a fair amount of pain but is bearing up very well,' the spokesman said. He said she will *rest* in the hospital for a *few days* and then will be allowed to return to her hotel where her activities will be restricted. 'The accident is *nothing serious*,' (her aunt) Mrs. Lawford said."

We wonder what our local utilization review committee would say about a "few days rest" in the hospital for a "minor leg injury" which was "nothing serious." And would a PSRO approve? Would the fact that the patient was Sen. Edward M. Kennedy's daughter alter anyone's opinion? We certainly hope not.

EEK

Editor's Note: The following is a special editorial by Dr. Jervey and represents his personal viewpoints on the subject.

Modern Cataract Extraction

It is desirable at this point to enlighten the general profession and the public, who have been understandably disturbed and interested by newspaper publicity on cataract removal by ultrasound and suction, and the dispensation of prolonged hospital confinement. They have not been informed of the dangers and difficulties of the method.

This procedure may be generating inappropriate and unethical publicity on an operation for cataracts which is not entirely original, which is expensive and, in many cases, not only undesirable but impossible. Also, there may be inherent objectionable effects of which we are as yet unaware.

The advantages of this procedure are small incisions and rapid return to work, benefits which are and have been known and available for many years to those initiated in safe and simple procedures.

For the ultrasonic procedure, equipment runs into the tens of thousands of dollars, and the procedure requires long and arduous training unobtainable by the average operator. There should be no rush to meccas where disappointments will follow: expenses will be enormous, and the results may be no better than those obtained by surgeons who are familiar with present day practical possibilities.

Results of the time honored procedure are excellent in the hands of those who have dared to flout convention in matters of hospitalization and immediate ambulation with corrective lenses where desirable. Hospital stay for cataract removal is unwanted in many cases, unnecessary in almost all instances except the medically ill, and can generally be safely avoided.

J. W. Jervey, M.D.

Letter To The Editor

Dear Editor:

I had hoped some other doctor would pick this up. I quote from a U.P.I. release of two weeks ago: T. Eston Marchant, of the University of S. C. trustees said the "decision of the S. C. Medical Association to oppose the second medical school is tragic," but he was not surprised. "Most doctors outside the Columbia area are oriented to preserving the status quo," he said. We can draw the following inferences from that statement, namely: That only in the Columbia area are doctors public spirited, unselfish and sympathetic with health care; or that the doctors on the outside lack the intelligence and farsightedness to make a sound decision. Mr. Marchant is a thinking man, and he must realize that this could not possibly be correct.

It is also incorrect to conclude that a group is satisfied "with the status quo" just because it does not jump at the prospect of some easy V.A. money, before the complete picture has been drawn. Is it not possible that the house under pressure leadership, the governor, and the senate finance committee did the jumping without proper study of the whole situation?

While there may be a few self-interested doctors, I feel most of them have given much thought to this matter and are sincere in their opposition to splitting and dividing South Carolina's medical teaching organization, which took many years to build up.

It is interesting to note that a number of the candidates for governor have come out against this type of hasty action involving the age-old fallacy of getting something for nothing. Even the legislature failed to investigate the matter in depth. They fell for the statistics of numbers, but forgot the principles of quality, attraction and distribution of doctors.

The State, June 1, had a headline "50% of New Doctors Plan to Leave State," after a check on "intents" released by the Medical College; also "64 of the present graduates plan to go outside the state for intern and residency training."

It is recognized among doctors that the place of residency training has a greater influence on young doctors in the matter of final location than the medical school ties. What we need is to make the postgraduate opportunities more attractive and more available.

The V.A. could therefore spend some of that pump priming money (we all realize it is not real money—but debt extension money) on improving its hospital and residency facilities. Westmoreland says this same type of aid could be available to improve and expand our present Medical University set up. This would avoid the hassle which will develop with two state supported medical colleges competing for revenue dollars, and for even scarcer teaching talent.

If the federal government wants to help, it could channel power and money into a combined federal-state program to redistribute and attract medical talent to the smaller centers and community hospitals, where the need is greatest, both for family physicians and specialists.

I feel that this whole matter needs further consideration and planning by the whole state.

Delmar O. Rhame, M. D.

The Journal of the South Carolina Medical Association

50 YEARS AGO

August, 1924

Dr. Milton Weinberg wrote on kidney colic. Dr. Wythe Rhett discoursed on neonatal care. Dr. W. H. Powe wrote on pyelitis. The State Board of Health reported a decrease in rabies but warned against over-optimism on this account.

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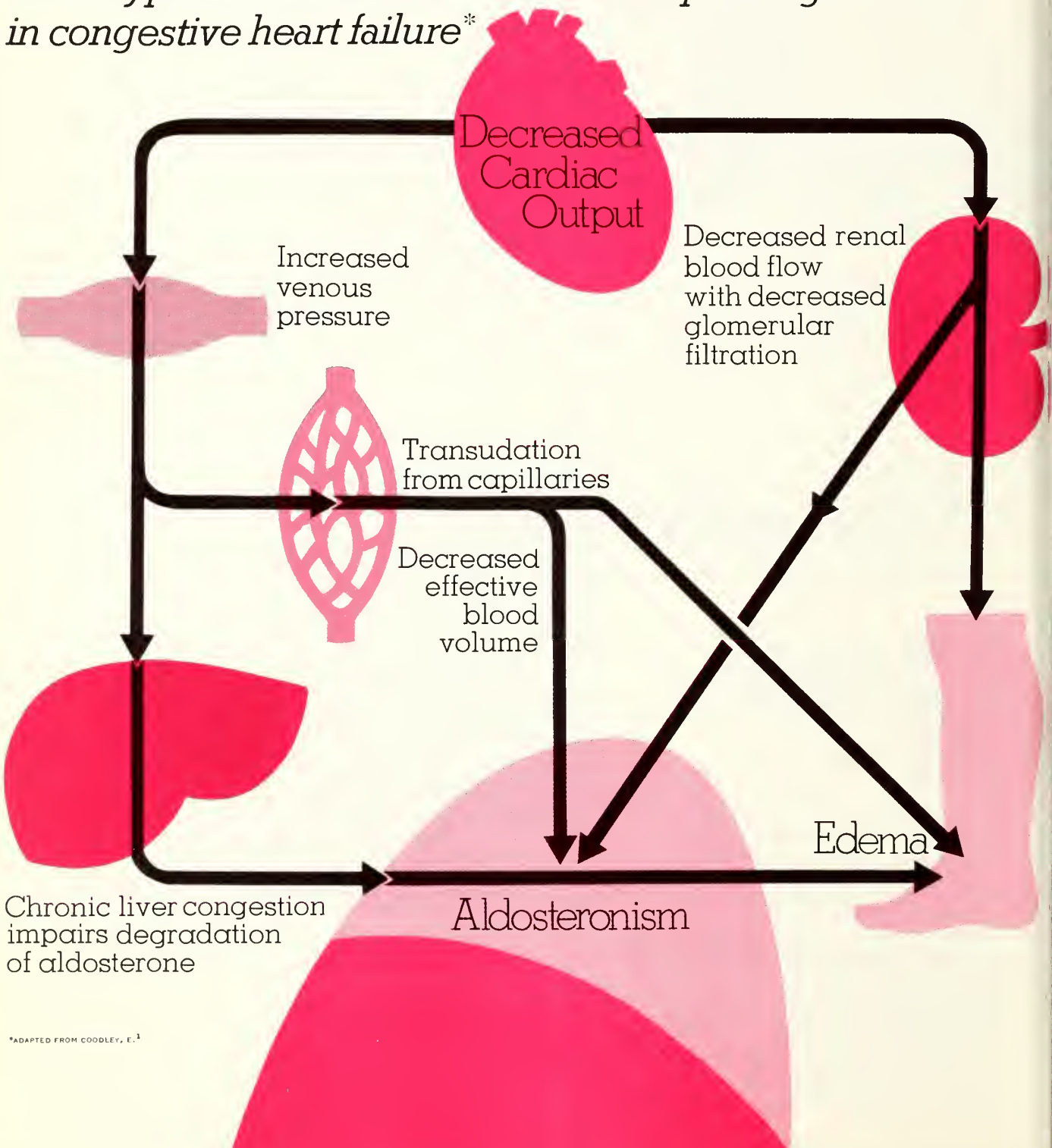
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- Permits daily additive diuretic effect while maintaining potassium balance.

Indications—Essential hypertension, edema or ascites of congestive heart failure, cirrhosis of the liver and the nephrotic syndrome, idiopathic edema. Some patients with malignant effusions may benefit from Aldactone (spironolactone), particularly when given with a thiazide diuretic.

Contraindications—Acute renal insufficiency, rapidly progressing impairment of renal function, anuria and hyperkalemia.

Warnings—Potassium supplementation may cause hyperkalemia and is not indicated unless a glucocorticoid is also given. Discontinue potassium supplementation if hyperkalemia develops. **Usage of any drug in women of childbearing age requires that the potential benefits of the drug be weighed against its possible hazards to the mother and fetus.**

Precautions—Patients should be checked carefully since electrolyte imbalance may occur. Although usually insignificant, hyperkalemia may be serious when renal impairment exists; deaths have occurred. Hyponatremia, manifested by dryness of the mouth, thirst, lethargy and drowsiness, together with a low serum sodium may be caused or aggravated, especially when Aldactone is combined with other diuretics. Elevation of BUN may occur, especially when pretreatment hyperazotemia exists. Mild acidosis may occur. Reduce the dosage of other antihypertensive drugs, particularly the ganglionic blocking agents, by at least 50 percent when adding Aldactone since it may potentiate their action.

Adverse Reactions—Drowsiness, lethargy, headache, diarrhea and other gastrointestinal symptoms, maculopapular or erythematous cutaneous eruptions, urticaria, mental confusion, drug fever, ataxia, gynecomastia, inability to achieve or maintain erection, mild androgenic effects, including hirsutism, irregular menses and deepening voice. Adverse reactions are infrequent and usually reversible.

Dosage and Administration—For **essential hypertension** in **adults** the daily dosage is 50 to 100 mg. in divided doses. Aldactone may be combined with a thiazide diuretic if necessary. Continue treatment for two weeks or longer since an adequate response may not occur sooner. Adjust subsequent dosage according to response of patient.

For edema, ascites or **effusions** in **adults** initial daily dosage is 100 mg. in divided doses. Continue medication for at least five days to determine diuretic response; add a thiazide or organic mercurial if adequate diuretic response has not occurred. Aldactone dosage should not be changed when other therapy is added. A daily dosage of Aldactone considerably greater than 75 mg. may be given if necessary.

A glucocorticoid, such as 15 to 20 mg. of prednisone daily, may be desirable for patients with extremely resistant edema which does not respond adequately to Aldactone and a conventional diuretic. Observe the usual precautions applicable to glucocorticoid therapy; supplemental potassium will usually be necessary. Such patients frequently have an associated hyponatremia—restriction of fluid intake to 1 liter per day or administration of mannitol or urea may be necessary (these measures are contraindicated in patients with uremia or severely impaired renal function). Mannitol is contraindicated in patients with congestive heart failure, and urea is contraindicated with a history or signs of hepatic coma unless the patient is receiving antibiotics orally to "sterilize" the gastrointestinal tract.

Glucocorticoids should probably be given first to patients with nephrosis, since Aldactone, although useful for diuresis, will not directly affect the basic pathologic process.

For **children** the daily dosage should provide 1.5 mg. of Aldactone per pound of body weight.

References: 1. Coodley, E.: Consultant 12:106-107, 109, 111, 113, 115 (July) 1972. 2. Thorn, G. W. and Lauler, D. P.: Am. J. Med. 53:673-684 (Nov.) 1972.

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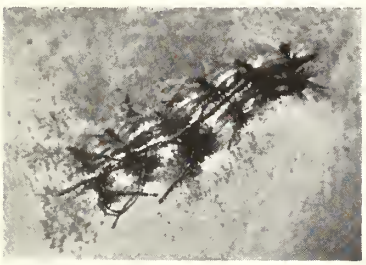
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THE AMA ANNUAL MEETING: JUNE, 1974

Chicago is a wonderful place, and the Palmer House is a wonderful convention hotel.

The meeting was a memorable one for those of us from South Carolina because our delegate, John Hawk, was running for trustee. The campaign funds made possible accommodations of the kind to which we would like to become accustomed; and we had more SCMA members to help us than we have ever had before. Present and working, among others, were your delegates, your alternates, your executive director, your president and vice-president, plus Nancy and Margaret Hawk, Polly Weston, Lib Peeples, Dessie Gilland, Mac Ball, Harold Jervey, and John Schofield.

Tucker was in charge of John's campaign. He and John worked hard, starting the day off each day by appearing before the state caucuses at 7:30 a.m. They would move from caucus to caucus on about a fifteen minute schedule until the House convened, and during the noon recess, and again during the hospitality hours during the evening; occasionally taking a break to return to our room so other candidates could appear before us. They deserved success.

When the House convened Sunday afternoon, the stage was decorated by the five biggest American flags I ever saw, in a center cluster, with the fifty state flags across the stage in front of them. It was gorgeous. The guests of honor were the presidents of various national medical associations and others.

There was a skit entitled, "Prelude to Revolution," based upon King George's closing of Boston Harbor. One member of the rabble kept yelling about taxation without representation, and finally screamed, "Repeal PSRO!"

The mood of the delegates was tense. There was evident resentment against the AMA administration, both elected and employed. Obviously as a response to Congressman Crane's unscheduled appearance at Anaheim, the Speaker, Tom Nesbitt of Tennessee, proposed a policy that requests for the privilege of the floor for a non-member should be made thirty days before the meeting. We countered that the delegates didn't know thirty days ahead of time who the speakers were to be or what they would say; but that if an eminent speaker invited by the officers delivered a partisan address, the delegates should have the privilege of producing a speaker of comparable rank to present the opposing view. The Speaker claimed immunity of persons like the Vice President of the United States. We claimed he relinquished this if he started meddling. The Speaker appealed to the House, which overruled him, on the grounds that the proposal was really an attempt to amend the by-laws in an improper way. So the effort was dropped for the time being.

Dr. Roth's presidential address, though clever, was not up to his usual standard.

That of Vice President Gerald Ford, to the contrary, was pretty good, and by no means improperly partisan. He started by telling us that PSRO really meant that "Politicians Should Remain Outside" of medical matters. He assured us that the administration was for the maintenance of personal privacy and for the preservation of the practice of private medicine, but he did point out the obligation of government to provide for individuals what they could not provide for themselves.

The next battle was over the method of election of trustees: whether all nominees for a full term should run "simultaneously" (at large), or whether they should run "separately" (by slot, in which the challenger would have to challenge a specific incumbent). The by-laws were amended to provide for simultaneous elections for the three-year terms, with a majority being necessary for election, and

each ballot to contain the names of no more or no less than the positions open. Those failing to capture full terms would be automatically nominated for any unexpired terms, with additional nominations, if desired, from the floor.

Next came PSRO. Monday afternoon some sixty-five spoke from one till five-thirty, expressing every possible shade of opinion from no-compromise, all-out repeal to whole-hearted support of PSRO. Nevertheless, when the House reconvened to consider the committee report with speakers standing at all six microphones, the Speaker immediately recognized the Chairman of the Council on Medical Service who moved immediate consideration and acceptance of the committee report—i.e., no debate. The House approved this cloture by a two-thirds majority, and then adopted the committee report 185 to 56. The committee recommendation was that, though we didn't like the situation, we should accept PSRO as unrepeallable, and try to improve it and to make it work better. I cannot deny the vote, but I consider this the most outrageous abuse of parliamentary procedure and collusion I have ever seen so far.

As to the elections, they were a bitter disappointment. As everyone knows, there was wide-spread grassroots dissatisfaction over the way AMA officials, both elected and salaried, were handling AMA affairs, financially, politically, and philosophically. It was felt that financial resources were being squandered ineffectively and possibly wastefully. (This does not imply dishonesty.) It was felt that the political stance of the AMA was at best misguided and at the worst pusillanimous and mercenary. The philosophy of our administration was considered essentially amoral or, more plainly, opportunistic.

So the election hinged on whether we should elect officers who would continue doing what has proven so ineffectual, or whether we could elect some courageous fighters who would risk something for the sake of freedom and of conscience.

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Basically the status quo was maintained. I am not sure that the election of Dick Wilbur, who lost to Max Parrott in the presidential race, would have been an improvement from the standpoint of the preservation of the practice of free-enterprise medicine, but it would have been a repudiation of the present Board's policies and of Joe Miller and of the Ampac clique. Dick lost by 118 to 121.

Likewise, the leaders of the hardline Repeal PSRO faction were John Heard of Georgia, John Hawk of South Carolina, and James Stewart of Louisiana. All lost.

We shall now have to decide whether the AMA is salvageable for our purposes, or whether we must try another vehicle such as the AAPS or the CMS. In either event, as always, I am opposed to the concept of unitary membership, which means that if you wish to join your county medical society, which you may almost have to do, you must also join your state association and the AMA. Compulsion is the antithesis of freedom and of individual responsibility.

As regards specific actions:

1) The House voted for elections of Trustees for full terms to be "simultaneous" or at large, not "separate" or by slot as formerly.
2) The House required interns and residents to join the AMA through their county societies like other doctors, unless provisions for them to do so were not available.
3) The House rejected the proposal that conviction of a felony should lead to automatic punishment by the AMA, on the grounds that such sanctions more properly belonged to state and county societies.
4) The decision not to seek repeal of PSRO as a primary objective, but to continue our present schizophrenic and self-defeating retreat from victory was reached by a vote of 185 to 56, after the collusive application of cloture as previously described. We voted no.
5) The 1974 variant of registration of firearms was defeated, with reaffirmation of our present advocacy of swift and severe punishment for the use of firearms in the commission of crime.
6) It was voted to try to exclude PSRO-like controls from any National Health Insurance legislation. One wonders why.
7) Resolution 90 was passed, which urged that the time given to respond to regulations proposed in the Federal Register be increased from thirty to ninety days, and that mandatory public hearings be held on proposed regulations.
9) Resolution 92 was adopted. It sought an amendment to the HMO Act, PL92-222, to provide that when employees were offered HMO coverage, they should also have an option of standard coverage.
10) The House directed the Board to oppose legislation to place the practice of medicine under public utility-type legislation.
11) The House referred Resolution 43 dealing with compulsory sterilization and abortion for any reason to the Board of Trustees for further study.
12) There were three resolutions dealing with the FDA's role in determining the safety and efficacy of drugs. A South Carolina resolution sought repeal of the Kefauver-Harris Amendment to PL87-781 which enables the FDA to require efficacy as well as safety. The House rejected the request for repeal of this power to a request that the FDA consider the views of practicing physicians before removing frequently prescribed drugs from the market, the typical milk-toast AMA approach to federal issues of vital importance.
13) The 1973 financial statement of the Board of Trustees was filed. It showed that the AMA had operated at a deficit, though a smaller one than

sometimes. No consideration was given to the elimination of such items as the publication of Prism or letting the quacks and chiropractors rest in peace as inconsequential. The need for new revenues, through increased membership or dues was stressed.

We were told that the per diem allowances while on Association business were $300 for the President, President-Elect, and Chairman of the Board; $200 for Trustees; and that in fiscal 1973, the President spent 135 days on Association business, the average trustee, 99. The South Carolina resolution directing the Board of Trustees to adopt only a balanced budget and to adhere to it was amended by addition of "insofar as possible" and then adopted. Ho hum.

14) The Board of Trustees was directed to distribute, as soon as practical after each Board meeting, summary reports of the actions taken to each delegate, alternate delegate, and state association.

15) There was considerable discussion of malpractice insurance problems, which are particularly acute in New York and California, where prohibitive premiums prevent young doctors from even entering practice. The subject was finally referred to the Board of Trustees.

16) In the past, it has been considered unethical to charge interest on overdue accounts. The Judicial Council was asked to reconsider this matter.

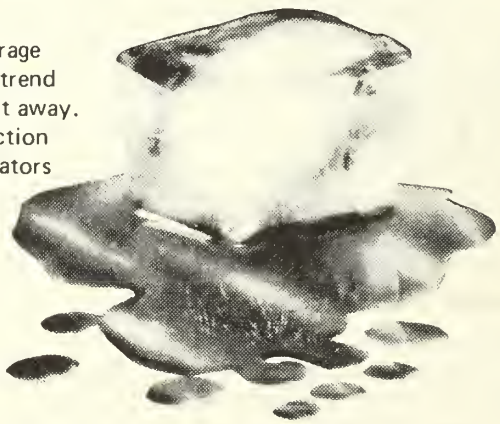
Of course many other subjects of varied interest and importance came up.

This will be the last official report of this sort that you will receive from me as delegate from the South Carolina Medical Association to the AMA. For urgent personal reasons I had to leave the meeting in Chicago early, and I resigned as delegate on June 26, 1974, leaving your business in the capable hands of Dr. Harrison Peeples. I have enjoyed serving in this capacity, and have considered it an honor and a privilege, for which I will always be in your debt.

Thomas Parker, M.D.

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South Carolina PSRO

The South Carolina Medical Care Foundation has received a PSRO planning contract from the Department of Health, Education, and Welfare and has begun work on the planning and developmental aspects of the PSRO program. This planning process will take approximately six months, at which time the Foundation will seek designation as the operational PSRO in South Carolina.

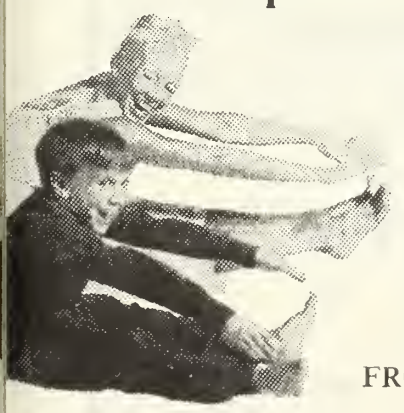
Officers of the Foundation for the coming year will be: President, Kenneth N. Owens, M.D., of Aiken; Vice President, Halsted M. Stone, M.D., of Chester; Secretary-Treasurer, Randolph D. Smoak, Jr., M.D., of Orangeburg; and Executive Director, Charles Johnson, of Columbia. Mr. William F. Mahon has been hired as Assistant Executive Director and PSRO Program Director, and will join the Foundation on the first of September. The Foundation's offices are located at the S. C. Medical Asseociation headquarters in Columbia. The telephone number is 252-6313.

The Foundation's responsibilities during the PSRO planning phase include a comprehensive assessment of the medical resources in South Carolina, and an analysis of existing utilization and medical review programs in facilities throughout the State. A questionnaire requesting such information has been sent to each hospital administrator, and the Foundation would welcome suggestions or comments from any interested physicians, either through the hospital or directly to the Foundation office.

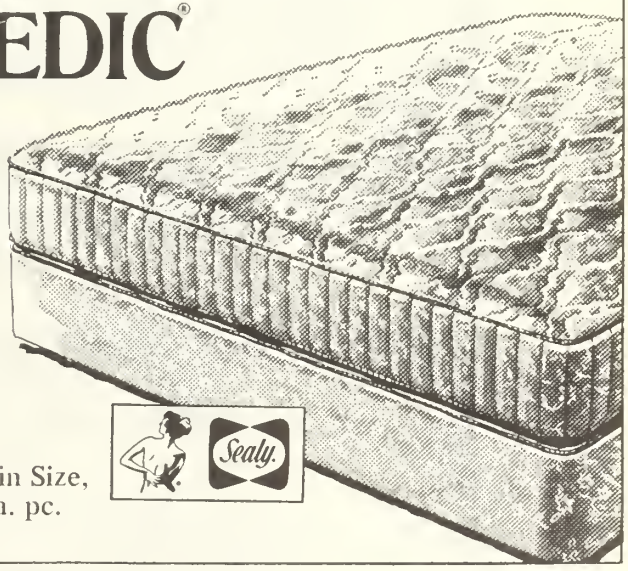
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What is a QUAD?

The South Carolina Hospital Research and Education Foundation, Inc. and South Carolina Hospital Association has inaugurated a new Quality, Utilization and Data Project known as QUAD, and has appointed George R. Berch as Project Director and Assistant Director, SCHA. This project is based on subcontract with the South Carolina Health Policy and Planning Council and grants from The Duke Endowment and the South Carolina Regional Medical Program.

In early 1974 the South Carolina Medical Association distributed copies of the proposed program to hospital chiefs of staff and invited their replies. As a result, the SCMA endorsed this program and has named to the QUAD Board Euta M. Colvin, M.D., as SCMA representative, and J. Hal Jameson, M.D., as S. C. Medical Care Foundation representative.

A program of consultation and education related to quality of care, and the development of a statewide hospital data system to serve multiple needs, QUAD has three major objectives: 1) to assist hospitals in developing programs of quality assurance, in order to meet the requirements of the Joint Commission on Accreditation of Hospitals, PSRO, and other accrediting and regulatory agencies; 2) to assist hospitals in expanding and improving their internal data and records systems; and 3) to develop a statewide hospital data system to meet the needs of hospitals, health planners, and state and federal agencies.

The activities in the total project which relate to the development of the data system are being performed in conjunction with the Division of Health and Social Development of the Office of the Governor of South Carolina, which received a contract from the National Center for Health Statistics for this program. The South Carolina Hospital Association, in turn, has subcontracts with Blue Cross - Blue Shield of South Carolina and the University of South Carolina for data processing and demographic analysis.

The state of South Carolina, and its various governmental agencies in the health area, will realize substantial benefits from the development of this system. It will enable state agencies and health planners to analyze morbidity trends, to identify special health problems, and to estimate more accurately the state's unmet health needs. The project will also contribute to national efforts to improve health planning, through the cooperation of the National Center for Health Statistics.

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CONTINUING EDUCATION

14TH ANNUAL CHARLOTTE POSTGRADUATE SEMINAR Oct 2-3, 1974. New location: Memorial Hospital Auditorium, Charlotte NC. Special afternoon session Oct 2 for physicians and wives, "Transactional Analysis, Concepts, and Sex," evening session, "Sex is Not a Four Letter Word," presented by Dr. Gordon Deckert, Dept of Psychiatry, U of Oklahoma Med Sch. Other topics: Leukemia, Myocardial Infarction, EKGS, Contraception, Respiratory Emergencies. 15 hours AAGP credit. No registration fee. Reservations: Mrs. Farrior Harloe, 1336 Brockton La, Charlotte NC 28211

RED ALERT is the title of a two-day Regional Institute on Trauma to be held Nov 1-2, 1974, at Mills-Hyatt House, Charleston SC. The Assoc of Operating Room Nurses, Charleston Chapter I is presenting the Institute which is sponsored by AORN National Committee on Education. Topics include: Massive Burn, OR Nursing, Air Bed Care, Trauma Evaluation, EMS Program. Contact: Registration Chairman, Donna O'Rourke RN, 1334 Hampshire Rd, Charleston SC 29412

FAMILY PRACTICE REVIEW COURSE—The Division of Continuing Education of the Med Univ of S C again offers the fifth annual FP refresher course Sept 16-21, 1974, at Mills-Hyatt House Hotel in Charleston SC. Registration open through Sept 9. Fee $140 payable to Division of Continuing Education, MUSC, sent to: Dr. Vince Moseley, Director, Div of Continuing Education, MUSC, 80 Barre St, Charleston SC 29401.

CALL FOR PAPERS

INTERNATIONAL BIOMATERIALS SYMPOSIUM and First Meeting of Society of Biomaterials at Clemson Univ, April 26-30, 1975. Sessions: Cranio-Facial Materials, Oral-Dental Materials, Recent Advances in Research & Applications, Cardiovascular Materials, Orthopedic Materials. Abstracts must be submitted by Oct 1, 1974. For details: Francis W. Cooke, Div of Interdisciplinary Studies, 301 Rhodes Bldg, Clemson Univ, Clemson SC 29631

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CONTRAINDICATIONS: Hypersensitivity to any of the tetracyclines
WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**
Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)
Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.
Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)
All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.
Tetracyclines are present in milk of lactating women taking tetracyclines.
To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.
Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.
PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.
In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.
Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.
In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).
Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.
Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.
ADVERSE REACTIONS: Gastrointestinal (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.
Skin: maculopapular and erythematous rashes; exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).
Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).
Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.
Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.
Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.
Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur.
USUAL DOSAGE: Adults—600 mg daily, divided into two or four equally spaced doses. More severe infections, an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, 'Rondomycin' (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.
For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.
Eaton Agent pneumonia: 900 mg daily for six days.
Children—3 to 6 mg/lb/day divided into two to four equally spaced doses.
Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.
Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.
In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.
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The Role of the Detail Man

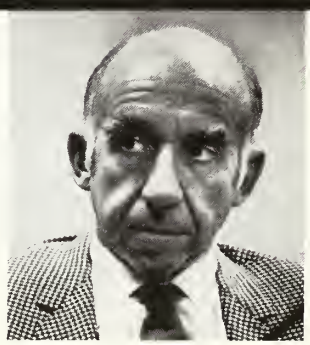


Dr. Willard Gobbell
Family Physician
Encino, California

"I may be prejudiced, but I am very much in favor of the detail men I meet. Most of them are knowledgeable about the drugs they promote and can be a great help in acquainting me with new medication."

Family Physician's Perception

I think that most general practitioners in this area feel as I do about the detail man. Over the years I have gotten to know most of the men who visit me regularly and they in turn have become aware of my particular interests and the nature of my practice. They, therefore, limit their discussion as much as possible to the areas of interest to me. Since I usually see the same representative again in future visits, it is in his best interest to supply me with the most honest, factual, as well as up-to-date information about his products.



Dr. Jeremiah Stamler
Chairman
Department of Community Health and Preventive Medicine, and Dingman Professor of Cardiology
Northwestern University Medical School

"In the total picture of dealing with health problems in this country, there is a potential for detail men to play a meaningful role."

The Positive Influence

My contact with representatives and salesmen of the pharmaceutical industry is the type of contact that people in a medical center, research people, and academic people have and that's in all likelihood on a somewhat different level from that of the practicing physician.

Let me touch on how I personally perceive the role of the sales representative. These men reach large numbers of health professionals. Thus they could be—and at times actually are—disseminators of useful information. They could consistently serve a real educational function in their ability to discuss their products.

At present they do distribute printed material, brochures and pamphlets—some of it scientifically sound and therefore truly useful—as well as some excellent films produced by the pharmaceutical industry. When they function in this

Opinion & Dialogue

He a Source of Information?

Yes, with certain reservations. The average sales representative has a great fund of information about the drug products he is responsible for. He is usually able to answer most questions fully and intelligently. He can also supply reprints of articles that contain a great deal of information. Here, too, I exercise some caution. I usually accept most of the statements and opinions that I find in the papers and studies which come from the larger teaching facilities. It goes without saying that a physician should also rely on other sources for his information on pharmacology.

Training of Sales Representatives

Ideally, a candidate for the position as a sales representative of a pharmaceutical company should be a graduate pharmacist who has a questioning mind. I don't think this is possible in every case, and so it becomes the responsibility of the pharmaceutical company to train these individuals comprehensively. It is of very great importance that the detail man's knowledge of the product he represents be constantly reviewed as well as updated. This phase of the sales representative's education should be a major responsibility of the medical department of the pharmaceutical company.

I am certain that most of these companies take special care to give their detail men a great deal of information about the products they produce—information about indications, contraindications, side effects and precautions. Yet, although most of the detail men are well informed, some, unfortunately, are not. It might be helpful if sales representatives were reassessed every few years to determine whether or not they are able to fulfill their important function. Incidentally, I feel the same way about periodic assessments of everyone in the health care field, whether they be general practitioners, surgeons or salesmen.

Value of Sampling

I personally am in favor of limited sampling. I do not use sampling in order to perform clinical testing of a drug. I feel that drug testing should rightly be left to the pharmacology researcher and to the large teaching institutions where such testing can be done in a controlled environment.

I do not use samples as a "starter dose" for my patients. I do, however, find samples of drugs to be of value in that they permit me to see what the particular medication looks like. I get to see the various forms of the particular medication at first hand, and if it is in a liquid form I take the time to taste it. In that way I am able to give my patients more complete information about the particular medications that I prescribe for them.

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capacity they are indeed useful; particularly in the fact that they disseminate broadly based educational material and serve not just as "pushers" of their drugs.

The Other Side of the Coin

Obviously, the pharmaceutical companies are not producing all this material as a labor of love—they are in the business of selling products for profit. In this regard the ambitious and improperly motivated sales representative can exert a negative influence on the practicing physician, both by presenting a one-sided picture of his product, and by encouraging the practitioner to depend too heavily on drugs for his total therapy. In these ways, the salesman has often distorted objective reality and undermined his potential role as an educator.

The Industry Responsibility

Since the detail man must be an information resource as well as a representative of his particular pharmaceutical company, he should be carefully selected and thoroughly trained. That training, perforce, must be an ongoing one. There must be a continuing battle within and with the pharmaceutical industry for high quality not only in the selection and training of its sales representatives, but also in the development of all of its promotional and educational material.

The industry must be ready to accept constructive as well as corrective criticism from experts in the field and consumer spokesmen, and be willing to accept independent peer review. The better educated and prepared the salesman is, the more medically accurate his materials, the better off the pharmaceutical industry, health professionals and the public—*i.e.*, the patients—will be.

Physician Responsibility

The practicing physician is in constant need of up-dated information on therapeutics, including drugs. He should and does make use of drug information and answers to specific questions supplied by the pharmaceutical representative. However, that information must not be his main source of continuing education. The practitioner must keep up with what is current by making use of scientific journals, refresher courses, and information received at scientific meetings.

The practicing physician not only has the right, but has the responsibility to demand that the pharmaceutical company and its representatives supply a high level of valid and useful information. I feel certain that if such a high level is demanded by the physician as well as the public, this demand will be met by an alert and concerned pharmaceutical industry.

From my experience, my impression is that sectors of the pharmaceutical industry are indeed ethical. I challenge the industry as a whole to live up to that word in its finest sense.

Pharmaceutical Manufacturers Association
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P·M·A



What does man have in common with Samson?

Neither man nor the gorilla can synthesize vitamin C. Interestingly, the slow loris, a primate much further down the evolutionary scale, can convert L-1,4-gulonolactone to ascorbic acid in its liver and presumably does not require an exogenous source of ascorbic acid.

Because man can neither synthesize vitamin C nor store most of the water soluble vitamins, these nutrients must be replenished continuously in order to maintain normal tissue levels.

Generally, this is accomplished in his daily diet. But under conditions of illness, stress, in convalescence or following surgery, vitamin stores may be depleted or metabolic demands increased.

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THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

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OCT 3

BLOOD, BREAD, IRON AND THE AGING BRAIN

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UME 70 SEPTEMBER 1974 NUMBER 9

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Both often



Predominant psychoneurotic anxiety

Associated depressive symptoms

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequenc and/or severity of grand mal seizures ma require increased dosage of standard ant convulsant medication; abrupt withdraw may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) hav occurred following abrupt discontinuanc (convulsions, tremor, abdominal and mu cle cramps, vomiting and sweating). Ke addiction-prone individuals under carefu

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OCT 3 1974



Valium® (diazepam)

2-mg, 5-mg, 10-mg tablets

in psychoneurotic anxiety states with associated depressive symptoms

According to her major symptoms, she is a psychoneurotic patient with severe anxiety. But according to the description she gives of her feelings, part of the problem may sound like depression. This is because her problem, although primarily one of excessive anxiety, is often accompanied by depressive symptomatology. Valium (diazepam) can provide relief for both—as when excessive anxiety is relieved, the depressive symptoms associated with it are also often relieved.

There are other advantages in using Valium for the management of psychoneurotic anxiety with secondary depressive symptoms: the psychotherapeutic effect of Valium is pronounced and rapid. This means that improvement is usually apparent in the patient within a few days rather than in a week or two, although it may take longer in some patients. In addition, Valium (diazepam) is generally well tolerated; as with most CNS-acting agents, caution patients against hazardous occupations requiring complete mental alertness.

Also, because the psychoneurotic patient's symptoms are often intensified at bedtime, Valium can offer an additional benefit. An *h.s.* dose added to the *b.i.d.* or *t.i.d.* treatment regimen can relieve the excessive anxiety and associated depressive symptoms and thus encourage a more restful night's sleep.

For further information on this subject, the following references are provided:

1. Henry BW, *et al: Dis Nerv Syst 30*:675-679, Oct 1969.
2. Hollister LE, *et al: Arch Gen Psychiatry 24*:273-278, Mar 1971.
3. Claghorn J: *Psychosomatics 11*:438-441, Sept-Oct 1970.

surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate this action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

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SOUTH CAROLINA MEDICAL ASSOCIATION

SEPTEMBER, 1974 — VOL. 70, NO. 9

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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association Business office: 1508 Washington Street, Columbia, South Carolina 29201.

Subscription price: $6.00 in the U. S. ($7.00 per year, Foreign) Second Class Postage paid at Columbia, S. C. and at additional mailing offices

The views expressed in this publication are those of the writers and do not necessarily reflect the opinions of the South Carolina Medical Association

Contributions of Original Articles

Length—Short articles of about 2,500 words (about 8 typewritten pages, double spaced) are preferred Longer articles will defer to the shorter ones in schedule of publication

Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted

Illustrations—Ordinarily publication of 4 small illustrations or the equivalent accompanying an article will be paid for by The Journal Any number beyond this must be paid for by the author except under unusual conditions Illustrators should be sent as glossy prints or graphs in black ink with lettering large enough to show after reduction

References—Should conform to the following order: surname and initials of author, title of article in small letters, name of periodical, with volume, page, month, day of month if weekly, and year—e.g.: Lee, G. S.: The heart rhythm following therapy with digitalis Arch Int Med 44:554, Dec 1942 They should be listed numerically in order of appearance in the text Standard abbreviation for journals should be used Note that periods are not used with these abbreviations as indicated by the Index Medicus Other abbreviations should be standard—e.g. mg, ml, Gm.

Reprints—Reprints will be made for the author at established rates

SEPT. 30, 1974

PROGRAM

Sept. 30 MONDAY

7:30 a m **REGISTRATION**
Raad House

9:00 a m William H. Masters, M.D.
Virginia E. Johnson, St. Louis, Mo., "SEX AND SEXUALITY"

10:00 a m **COFFEE BREAK**
Exhibit Visitation

10:30 a m Louis C. Lundstrom, General Motors Corp., Warren, Mich., "THE STATUS OF AUTO SAFETY" (GM ESV exhibit)

11:00 a m Joseph D. Godfrey, M.D., Buffalo, N.Y., "WHAT'S NEW IN SPORTS MEDICINE"?



1:00 p m **LUNCHEON**
Continental Room

SPEAKER:
Joseph D. Godfrey, M.D.
Team Physician, Buffalo Bills,
"CONTACT"

2:00 p m to 4:00 p m **SYMPOSIUM**

"SEXUAL DYSFUNCTION"

William H. Masters, M.D.
and
Virginia E. Johnson

Reproductive Biology Research Foundation
St. Louis, Mo.

(Symposium open to physicians, physician's wives and R.N.'s)



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Sept. 30 & Oct. 1, 1974



Wm. H. Masters, M.D.
St. Louis, Mo.



Wm. E. Thornton, M.D.
Houston, Texas



Virginia E. Johnson
St. Louis, Mo.



C. A. Harvey, M.D.
Groton, Conn.



Louis C. Lundstrom
Warren, Mich.



Peter C. Gazes, M.D.
Charleston, S.C.



Joseph D. Godfrey, M.D.
Buffalo, N.Y.



E. C. Wong, M.D.
Denver, Colo.



W. J. Lewis, M.D.
Dayton, Ohio



Arthur Taub, M.D.
New Haven, Conn.

OCT. 1, 1974

PROGRAM

Oct. 1 TUESDAY

8:00 am **REGISTRATION**
Raad House

9:00 am Wm. E. Thornton, M.D., NASA, Houston, Tex., "WHAT'S NEW—SKYWARD"?

9:30 am C. A. Harvey, M.D., Naval Submarine Med. Res. Lab., Groton, Conn., "PACKAGED ENVIRONMENTS—MAN'S PROGRESS IN SUB-AQUATIC SURVIVAL"

10:00 am **COFFEE BREAK**
Exhibit Visitation

10:30 am Peter C. Gazes, M.D., Charleston, S.C., "WHAT'S NEW IN MEDICAL OFFICE EMERGENCIES"?

11:00 am E. C. Wong, Master Acupuncturist, Denver, Colo., "ACUPUNCTURE AS AN ADJUNCT"

11:30 am Arthur Taub, M.D., Ph.D., New Haven, Conn., "ACUPUNCTURE—AN HISTORICAL ANALYSIS AND PHYSIOLOGICAL CRITIQUE"



1:00 p m **LUNCHEON**
Continental Room

SPEAKER:
W. J. Lewis, M.D., Chairman, AMPAC Board, Dayton, Ohio, "POLITICAL ACTION—AN EFFECTIVE LONG-RANGE PLAN"

2:00 p m to 4:00 p m **SYMPOSIUM**

"NEW MEDICAL HORIZONS IN SPACE AND UNDER THE SEA"

Wm. E. Thornton, M.D.
NASA, Houston, Texas

C. A. Harvey, M.D.
Naval Submarine Medical Research Laboratory, Groton, Connecticut

TECHNICAL

exhibits

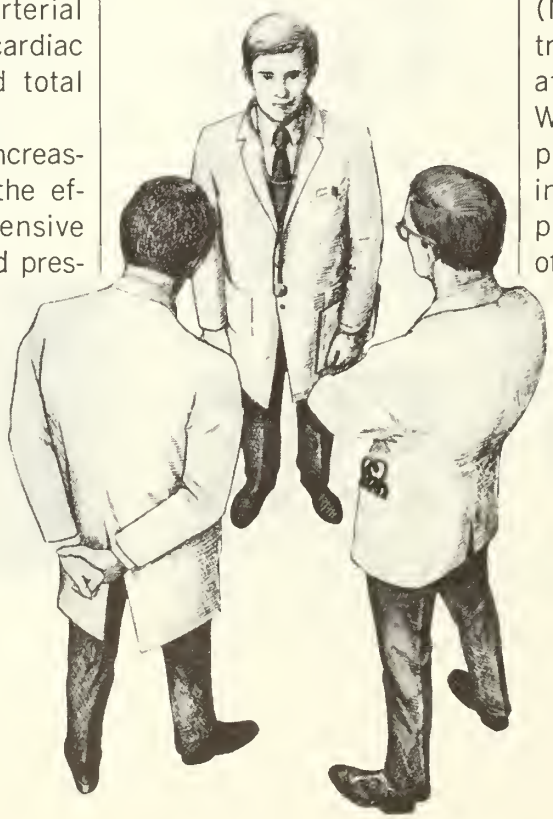
T.V.M.A. 1974 proudly presents an attractive, informative and well programmed display of technical exhibits. The professional representatives who staff them are capable of furnishing background information on any products they have brought to the assembly. Plan to spend some time each day viewing the exhibits.

EXHIBITS WILL BE OPEN FROM 9:00 A.M. UNTIL 4:00 P.M.

The more physicians consider the hemodynamics of lowering blood pressure...

Most physicians now agree on the importance of reducing blood pressure in the hypertensive patient. But high blood pressure exists, of course, only as part of a complete clinical picture. The hemodynamic profile of well-established essential hypertension is characterized by elevated arterial blood pressure, normal cardiac output, and increased total peripheral resistance.

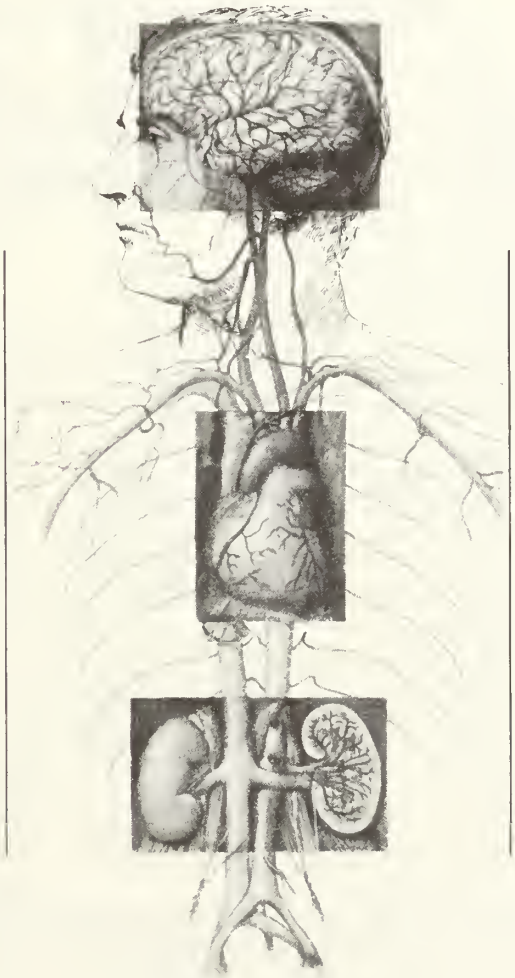
And so, physicians are increasingly concerned with the effects of an antihypertensive agent not only on blood pressure itself but also on the hemodynamic pattern—in short, with the total effect of the drug. *Does* it indeed help lower blood pressure effectively? *Is* peripheral resistance reduced? *Are* cardiac output and renal functions maintained? And, also, is there likely to be drug-induced postural hypotension serious enough to pose a threat to the patient's cerebrovascular status?



With this emphasis on overall drug performance has come a growing reliance on ALDOMET® (Methyldopa, MSD) in the treatment of sustained moderate hypertension.

With its unique hemodynamic profile, ALDOMET has drawn increasing attention and approval from physicians. First, of course, for its efficacy in

the more physicians rely on this unique antihypertensive



ing blood pressure. But are other considerations ll. Cardiac output is usu- aintained with no cardiac eration; in some patients eart rate is actually d. Peripheral resistance pparently reduced. MET does not usually romise existing renal on; it generally does not e renal blood flow, glo- ar filtration rate, or fil- fraction. And ALDOMET y does not cause sympto- postural or exercise ension.

Contraindications include active hepatic disease and known sensitivity to the drug. Use with caution in patients with a history of liver disease or dysfunction. Not recommended in pheochromocytoma or pregnancy.

It is important to recognize that a positive Coombs test, hemolytic anemia, and liver disorders may occur with methyldopa therapy. The rare occurrences of hemolytic anemia or liver disorders could lead to potentially fatal complications unless properly recognized and managed. For more details see the brief summary of prescribing information.

In most cases of sustained moderate hypertension

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smoothly lowers blood pressure

NEW now available in **500 mg TABLETS** as well as the standard 250-mg tablets

a rief summary of prescribing information, as see following page.

In most cases of sustained moderate hypertension

ALDOMET®
(METHYLDOPA MSD)

smoothly lowers blood pressure

Contraindications: Active hepatic disease, such as acute hepatitis and active cirrhosis. Known sensitivity. Not recommended in pheochromocytoma. Unsuitable in mild or labile hypertension responsive to mild sedation or thiazide therapy. Use cautiously in patients with history of previous liver disease or dysfunction.

Warnings: It is important to recognize that a positive Coombs test, hemolytic anemia, and liver disorders may occur with methyldopa therapy. The rare occurrences of hemolytic anemia or liver disorders could lead to potentially fatal complications unless properly recognized and managed. Read this section carefully to understand these reactions.

With prolonged methyldopa therapy, 10% to 20% of patients develop a positive direct Coombs test, usually between six and twelve months of therapy. Lowest incidence is at daily dosage of 1 g or less. This on rare occasions may be associated with hemolytic anemia, which could lead to potentially fatal complications. One cannot predict which patients with a positive direct Coombs test may develop hemolytic anemia. Prior existence or development of a positive direct Coombs test is not in itself a contraindication to use of methyldopa. If a positive Coombs test develops during methyldopa therapy, determine whether hemolytic anemia exists and whether the positive Coombs test may be a problem. For example, in addition to a positive direct Coombs test there is less often a positive indirect Coombs test which may interfere with cross matching of blood.

At the start of methyldopa therapy, it is desirable to do a blood count (hematocrit, hemoglobin, or red cell count) for a baseline or to establish whether there is anemia. Periodic blood counts should be done during therapy to detect hemolytic anemia. It may be useful to do a direct Coombs test before therapy and at six and twelve months after the start of therapy. If Coombs-positive hemolytic anemia occurs, the cause may be methyldopa and the drug should be discontinued. Usually the anemia remits promptly. If not, corticosteroids may be given and other causes of anemia should be considered. If the hemolytic anemia is related to methyldopa, the drug should not be reinstituted. When methyldopa causes Coombs positivity alone or with hemolytic anemia, the red cell is usually coated with gamma globulin of the IgG (gamma G) class only. The positive Coombs test may not revert to normal until weeks to months after methyldopa is stopped.

Should the need for transfusion arise in a patient receiving methyldopa, both a direct and an indirect Coombs test should be performed on his blood. In the absence of hemolytic anemia, usually only the direct Coombs test will be positive. A positive direct Coombs test alone will not interfere with typing or cross matching. If the indirect Coombs test is also positive, problems may arise in the major cross match and the assistance of a hematologist or transfusion expert will be needed.

Fever has occurred within first three weeks of therapy, sometimes with eosinophilia or abnormalities in liver function tests, such as serum alkaline phosphatase, serum transaminases (SGOT, SGPT), bilirubin, cephalin cholesterol flocculation, prothrombin time, and bromsulphalein retention. Jaundice, with or without fever, may occur, with onset usually in the first two to three months of therapy. Rarely fatal hepatic necrosis has been reported. These hepatic changes may represent hypersensitivity reactions; periodic determination of hepatic function should be done particularly during the first six to twelve weeks of therapy or whenever an unexplained fever occurs. If fever, abnormalities in liver function tests, or jaundice appear, stop therapy with methyldopa. If caused by methyldopa, the temperature and abnormalities in liver function characteristically have reverted to normal when the drug was discontinued. Methyldopa should not be reinstituted in such patients.

Rarely, reversible reduction in leukocyte count with primary effect on granulocytes has been seen. Reversible thrombocytopenia has occurred rarely. When used with other antihypertensive drugs, potentiation of antihypertensive effect may occur.

Use in Pregnancy and Childbearing Age—Not recommended in pregnancy. In women of childbearing age, weigh potential benefits against possible fetal hazards.

Precautions: Methyldopa may interfere with measurement of: uric acid by the phosphotungstate method, creatinine by the alkaline picrate method, and SGOT by colorimetric methods. Since methyldopa causes fluorescence in urine samples at the same wavelengths as catecholamines, spuriously high levels of urinary catecholamines may be reported. This will interfere with the diagnosis of pheochromocytoma. Stop drug if involuntary choreoathetotic movements occur in patients with severe bilateral cerebrovascular disease. Patients may require reduced doses of anesthetics; hypotension occurring during anesthesia usually can be controlled with vasopressors. Hypertension has occurred after dialysis in patients on methyldopa because the drug is removed by this procedure.

Adverse Reactions: Sedation, usually transient, may be seen during initial therapy or when dosage is increased. Headache, asthenia, or weakness may be noted as early, transient symptoms. Symptoms associated with effective lowering of blood pressure are occasionally seen and include dizziness, lightheadedness, and symptoms of cerebrovascular insufficiency. Angina pectoris may be aggravated. Symptoms of orthostatic hypotension may occur; if symptoms occur, reduction of dosage is suggested. Bradycardia, nasal stuffiness, mild dryness of mouth, and gastrointestinal symptoms including distention, constipation, flatus, and diarrhea occur occasionally; these generally can be relieved by reducing dosage. Nausea and vomiting have been reported in only a few patients. Sore tongue or "black tongue," pancreatitis, and inflammation of salivary glands may occur.

Weight gain and edema occur infrequently and are relieved by administering a thiazide diuretic; if edema progresses or signs of pulmonary congestion appear, discontinue drug. A rise in BUN has been observed. Other rare reactions include breast enlargement, lactation, impotence, decreased libido, skin rash, mild arthralgia, myalgia, paresthesias, Bell's palsy, parkinsonism, psychic disturbances including nightmares, reversible mild psychoses or depression. Urine exposed to air after voiding may darken because of breakdown of methyldopa or its metabolites.

Note: Dosage should be limited initially to 500 mg daily when following previous antihypertensive agents other than thiazides. Maximal recommended daily dose is 3.0 g. Patients with impaired renal function may respond to smaller doses than patients with normal kidney function. Syncope in older patients has been related to increased sensitivity in those with advanced arteriosclerotic vascular disease; this may be avoided by lower doses. Tolerance occasionally seen either early or late, but more likely between second and third month after initiation of therapy; increased dosage or combined therapy with a thiazide frequently restores effective control.

How Supplied: Tablets, containing 250 mg methyldopa each, in single-unit packages of 100 and bottles of 100 and 1000; Tablets, containing 500 mg methyldopa each, in single-unit packages of 100 and bottles of 100.

For more detailed information, consult your MSD representative or see full prescribing information. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa. 19486

addendum

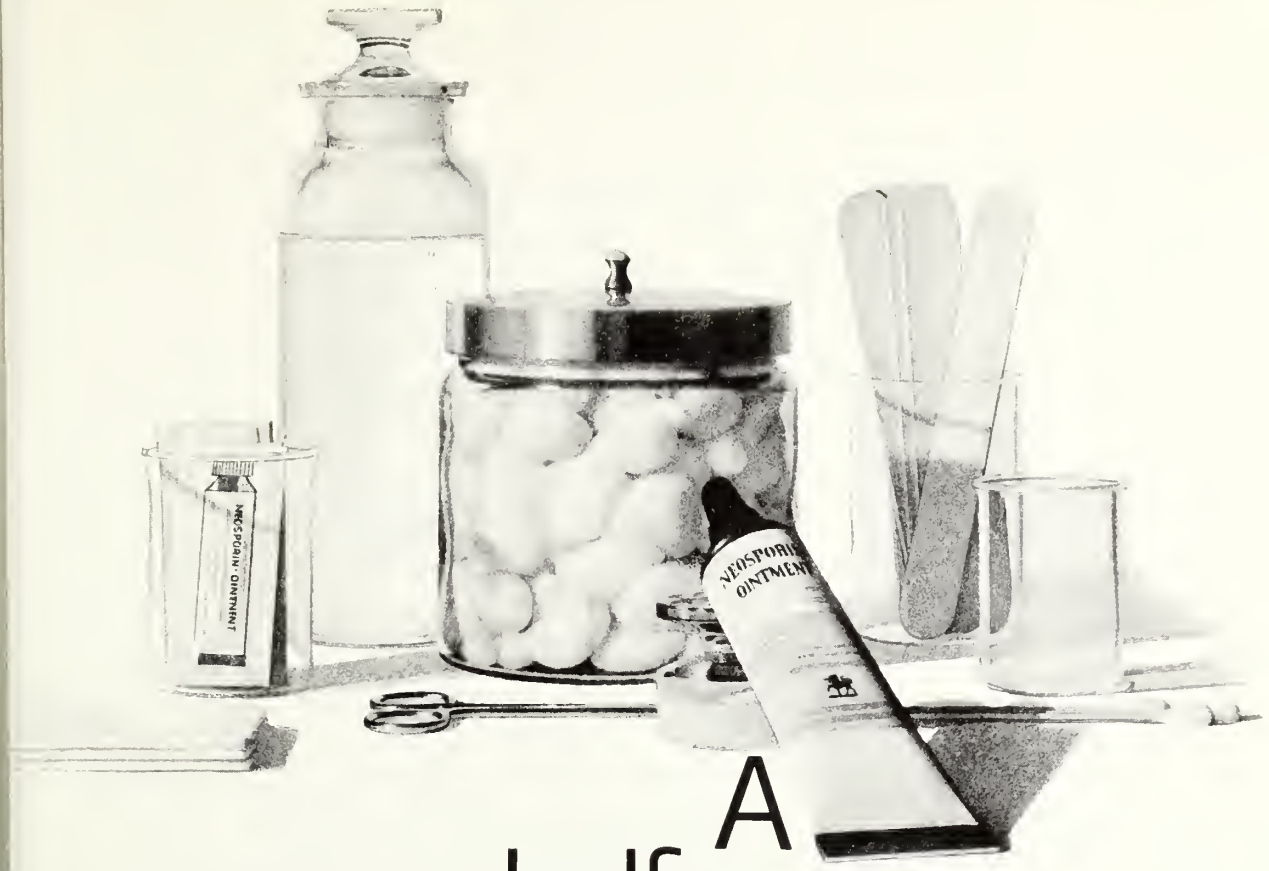
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INDICATIONS: *Therapeutically,* used as an adjunct to appropriate systemic therapy for topical infections, primary or secondary, due to susceptible organisms, as in: • infected burns, skin grafts, surgical incisions, otitis externa • primary pyodermas (impetigo, ecthyma, sycosis vulgaris, paronychia) • secondarily infected dermatoses (eczema, herpes, and seborrheic dermatitis) • traumatic lesions, inflamed or suppurating as a result of bacterial infection. *Prophylactically,* the ointment may be used to prevent bacterial contamination in burns, skin grafts, incisions, and other clean lesions. For abrasions, minor cuts and wounds accidentally incurred, its use may prevent the development of infection and permit wound healing.

CONTRAINDICATIONS: Not for use in the eyes or external ear canal if the eardrum is perforated. This product is contraindicated in those individuals who have shown hypersensitivity to any of the components.

WARNING: Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neomycin is possible. In burns where more than 20 percent of the body surface is affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

PRECAUTIONS: As with other antibacterial preparations, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

ADVERSE REACTIONS: Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section).

Complete literature available on request from Professional Services Dept. PML.

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The Upper Functional G.I. Disorder

The Pseudo-ulcer

Ulcer-like symptoms: no G.I. pathology



X-ray demonstrates normal stomach.

The patient is convinced he has an ulcer. However, symptoms are not quite typical, and x-ray findings are negative. These findings and the results of additional diagnostic procedures exclude an organic basis for the patient's complaints. A diagnosis of "upper functional gastrointestinal disorder" is made, which is supported by the fact that episodes of painful symptoms coincide with episodes of excessive anxiety, as indicated by the history.

It may be useful to explain to the patient the mechanism by which emotions upset normal G.I. functioning, resulting in hypersecretion and hypermotility and thus causing such symptoms as nausea and epigastric pain. In upper functional gastrointestinal disorders, counseling by the primary physician can often help the patient understand how excessive anxiety may cause flare-ups of G.I. symptoms.

A disproportionate number of patients seen by the general practitioner suffer from functional disorders, as do more than half of those seen by the gastroenterologist.* Where milder cases may respond to counseling alone, if symptoms are severe and disabling to any degree, a suitable regimen may include medication to reduce the symptoms and the excessive anxiety that often provokes these distressing symptoms.

In these cases, Librax as an adjunct can greatly contribute to the course of therapy. Its dual action can offer relief of both painful symptoms and excessive anxiety, because each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br. The antianxiety action of Librium® (chlordiazepoxide HCl) makes Librax exceptional among drugs for certain gastrointestinal disorders associated with excessive anxiety; the clidinium bromide (Quarzan™) component furnishes dependable antisecretory-antispasmodic action. Dosage is flexible; it may be adjusted according to your patient's requirements within the range of 1 or 2 capsules three or four times daily, up to 8 capsules daily in divided doses. Please consult the complete product information regarding precautions and adverse reactions.

*Rome HP, Brannick TL: Orientation and mechanism of functional disorders: clinicophysiologic correlation, chap. 133, in *Gastroenterology*, edited by Bockus HL. Philadelphia, W.B. Saunders Company, 1965, p. 1116.

An adjunct in anxiety-related upper functional G.I. disorders

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

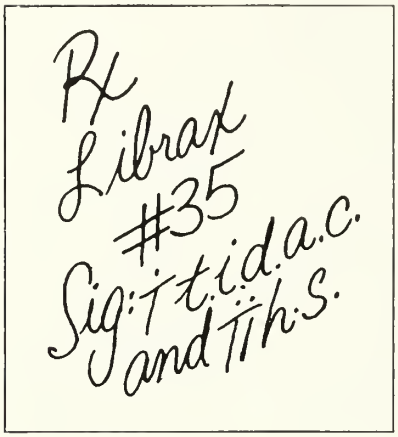
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Please see summary of product information on following page.

An adjunct in anxiety-related upper functional G.I. disorders

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.



Initial therapy

The initial prescription allows evaluation of patient response to therapy.



Follow-up therapy

Follow-up therapy with a prescription for 2 to 3 weeks' medication usually helps maintain patient gains.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Symptomatic relief of hypersecretion, hypermotility and anxiety and tension states associated with organic or functional gastrointestinal disorders; and as adjunctive therapy in the management of peptic ulcer, gastritis, duodenitis, irritable bowel syndrome, spastic colitis, and mild ulcerative colitis.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido —all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

Dosage: Individualize for maximum beneficial effects. Usual maintenance dose is 1 or 2 capsules, 3 or 4 times a day, before meals and at bedtime. Geriatric patients—see Precautions.

How Supplied: Librax® Capsules, each containing 5 mg chlordiazepoxide hydrochloride (Librium®) and 2.5 mg clidinium bromide (Quarzan$^{T.M.}$)—bottles of 100 and 500.

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BUTISOL Sodium is remarkably well tolerated: a 30-year safety record assures you that there is little likelihood of unexpected reactions.

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These are four good reasons for prescribing BUTISOL Sodium for the many patients who need to have the pace set just a little slower. Its gentle daytime sedative action is often all that's needed to help the usually well-adjusted patient cope with temporary stress.

*Based on surveys of average daily prescription costs.

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Contraindications: Sensitivity or idiosyncracy to barbiturates; history of manifest or latent porphyria or marked liver impairment; respiratory disease with dyspnea or obstruction; history of addiction to sedative/hypnotic drugs; uncontrolled pain, to avoid because of possible excitement.
Precautions: Exercise caution in: moderate to severe hepatic disease; anticoagulant therapy, because of possible increased metabolism of coumarin anticoagulants; withdrawal in drug dependence or the taking of excessive doses over a long period, to avoid withdrawal symptoms; elderly or debilitated patients, to avoid possible marked excitement or depression; use with alcohol or other CNS depressants, because of combined effects.
Adverse Reactions: Slight hangover, drowsiness, lethargy, headache, skin eruptions, nausea and vomiting, hypersensitivity reactions (especially in those with asthma, urticaria, angioneurotic edema, or similar conditions).
Usual Adult Dosage: For daytime sedation, 15 mg. to 30 mg. t.i.d. or q.i.d. For hypnosis, 50 mg. to 100 mg.
Available as: Tablets, 15 mg., 30 mg., 50 mg., 100 mg.; Elixir, 30 mg. per 5 cc. (alcohol 7%). BUTICAPS® [Capsules BUTISOL SODIUM (sodium butabarbital)] 15 mg., 30 mg., 50 mg., 100 mg.

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What's on your patient's face...

may be more important than his chief complaint

Patient P.T.* seen on 3/29/67 shows typical lesions of moderately severe keratoses. Note residual scarring on ridge of nose from previous cryosurgical and electrosurgical procedures.



Patient P.T.* seen on 6/12/67, seven weeks after discontinuation of 5% FU cream. Reaction has subsided. Residual scarring not seen except that due to prior surgery. Inflammation has cleared and face is clear of keratotic lesions.

*Data on file, Hoffmann-La Roche Inc., Nutley, N.J



The lesions on his face are solar/actinic— so-called "senile" keratoses... and they may be premalignant.

Solar, actinic or senile keratoses

These lesions may be called by several names, but they usually can be identified by the following characteristics. The typical lesion is flat or slightly elevated, of a brownish or reddish color, papular, dry, rough, adherent and sharply defined. They commonly occur as multiple lesions, chiefly on the exposed portions of the skin.

Sequence of therapy— selectivity of response

After several days of therapy with Efudex® (fluorouracil), erythema may begin to appear in the area of the lesions; this reaction usually reaches its height of unsightliness and discomfort within two weeks, declining after discontinuation of therapy. This reaction occurs in affected areas. Since the response is so predictable, lesions that do not respond should be biopsied.

Acceptable results

Treatment with Efudex provides highly favorable cosmetic results. Incidence of scarring is low. This is particularly important with multiple facial lesions. Efudex should be applied with care near the eyes, nose and mouth.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)-aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

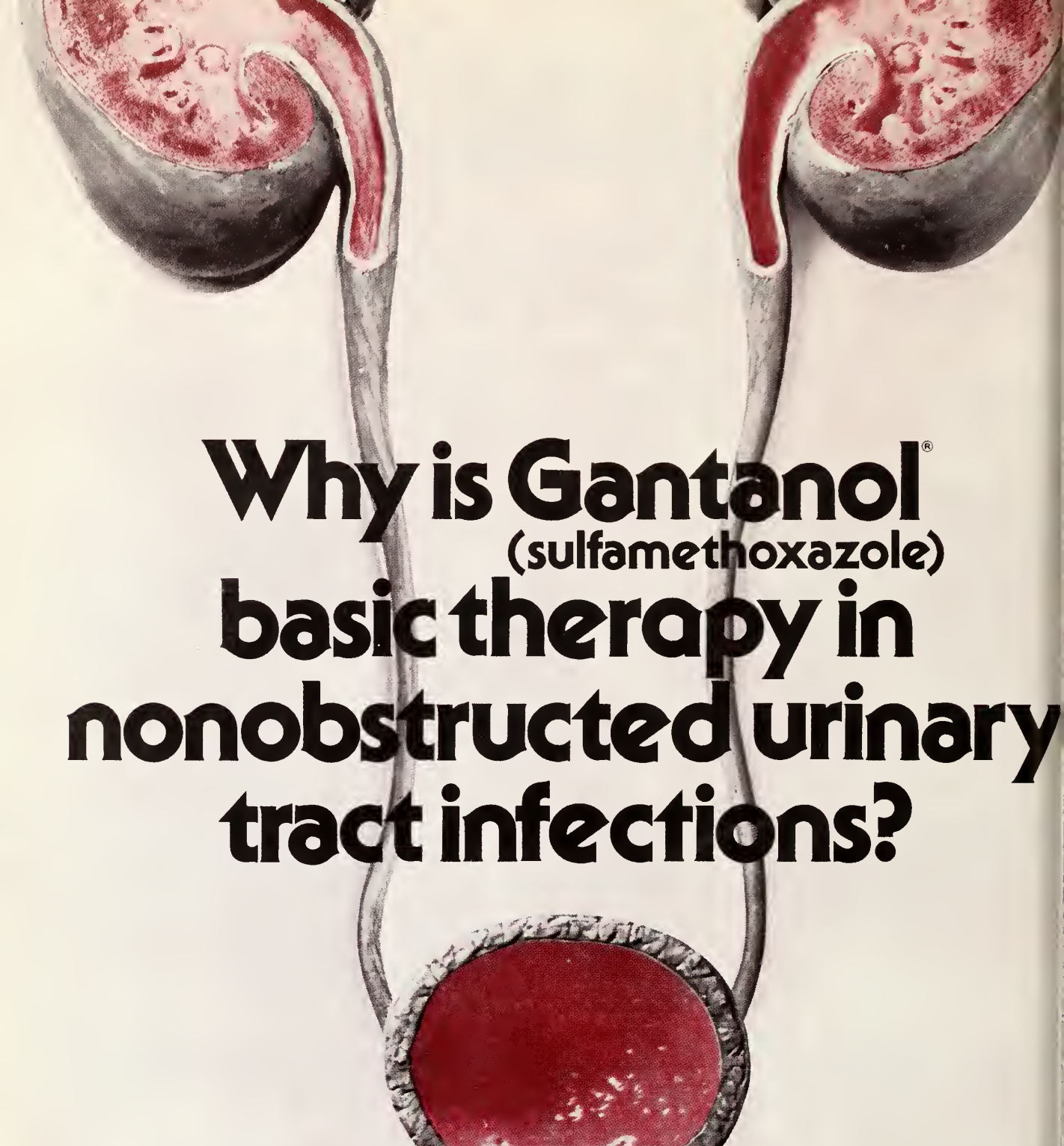
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This patient's lesions were resolved with

Efudex®
fluorouracil/Roche®

5% cream/solution...a Roche exclusive



Why is Gantanol® (sulfamethoxazole) basic therapy in nonobstructed urinary tract infections?

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Acute, recurrent or chronic nonobstructed urinary tract infections (primarily pyelonephritis, pyelitis and cystitis) due to susceptible organisms. **Note: Carefully coordinate *in vitro* sulfonamide sensitivity tests with bacteriologic and clinical response; add aminobenzoic acid to follow-up culture media. The increasing frequency of resistant organisms limits the usefulness of antibacterials including sulfonamides, especially in chronic or recurrent urinary tract infections.** Measure sulfonamide blood levels as variations may occur; 20 mg/100 ml should be maximum total level.

Contraindications: Sulfonamide hypersensitivity; pregnancy at term and during nursing period; infants less than two months of age.

Warnings: Safety during pregnancy has not been established. Sulfonamides should not be used for group A beta-hemolytic streptococcal infections and will not eradicate or prevent sequelae (rheumatic fever, glomerulonephritis) of such infections. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been reported and early clinical signs (sore throat, fever, pallor, purpura or jaundice) may indicate serious blood disorders. Frequent CBC and urinalysis with microscopic examination are recommended during sulfonamide therapy. Insufficient data on children under six with chronic renal disease.

Precautions: Use cautiously in patients with impaired renal or hepatic function, severe allergy, bronchial asthma; in glucose-6-phosphate dehydrogenase-deficient individuals in whom dose-related hemolysis may occur. Maintain adequate fluid intake to prevent crystalluria and stone formation.

Adverse Reactions: *Blood dyscrasias* (agranulocytosis, aplastic anemia, thrombocytopenia, leukopenia, hemolytic anemia, pur

Because it is considered a good choice...

- for efficacy in nonobstructed cystitis, pyelonephritis and pyelitis
- for control of susceptible *E. coli, Klebsiella-Aerobacter, Staph. aureus, Proteus mirabilis* and, less frequently, *Proteus vulgaris*
- for prompt antibacterial blood and urine levels in from 2 to 3 hours after initial 2-gram adult dose
- for economical around-the-clock coverage
- for maximum patient cooperation with easy-to-remember B.I.D. dosage

Basic Therapy

Gantanol®

(sulfamethoxazole)

Tablets/Suspension (0.5 Gm) (0.5 Gm/teasp.)

pura, hypoprothrombinemia and methemoglobinemia); *allergic reactions* (erythema multiforme, skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis); *gastrointestinal reactions* (nausea, emesis, abdominal pains, hepatitis, diarrhea, anorexia, pancreatitis and stomatitis); *CNS reactions* (headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo and insomnia); *miscellaneous reactions* (drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon). Due to certain chemical similarities with some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia as well as thyroid malignancies in rats following long-term administration. Cross-sensitivity with these agents may exist.

Dosage: Systemic sulfonamides are contraindicated in infants under 2 months of age (except adjunctively with pyrimethamine in congenital toxoplasmosis).

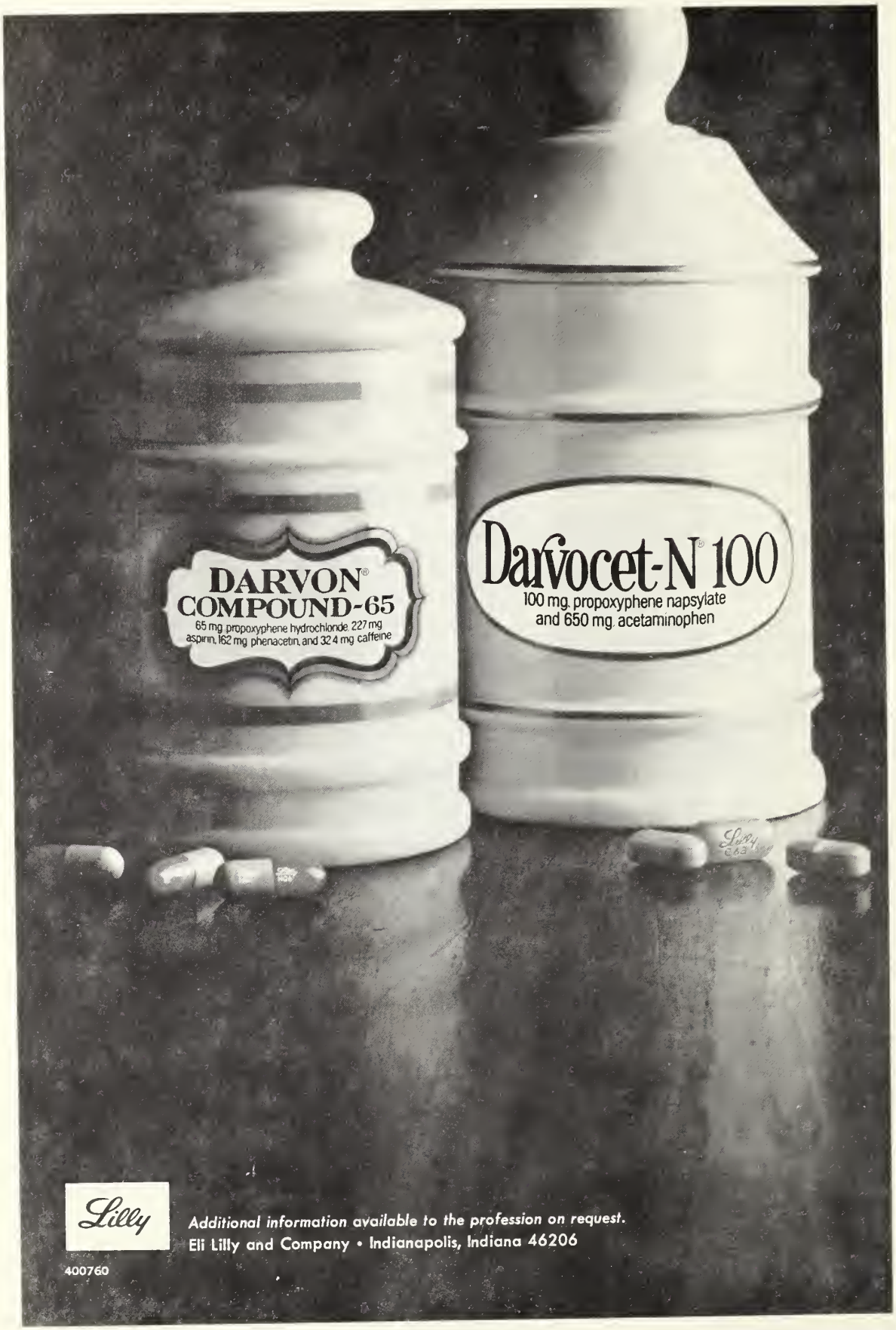
Usual adult dosage: 2 Gm (4 tabs or teasp.) initially, then 1 Gm *b.i.d.* or *t.i.d.* depending on severity of infection.

Usual child's dosage: 0.5 Gm (1 tab or teasp.)/20 lbs of body weight initially, then 0.25 Gm/20 lbs *b.i.d.* Maximum dose should not exceed 75 mg/kg/24 hrs.

Supplied: Tablets, 0.5 Gm sulfamethoxazole; Suspension, 0.5 Gm sulfamethoxazole/teaspoonful.

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THE JOURNAL

SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 70 SEPTEMBER, 1974 NUMBER 9

BLOOD, BREAD, IRON AND THE AGING BRAIN*

CHARLES N. STILL, M.D.**

"Legt eine moglichst starke militarische Kraft . . . in die Hand des Konigs von Preussen, dann wird er die Politik machen konnen, die Ihr wunscht; mit Reden und Schutzenfesten und Liedern macht sie sich nicht, sie macht sich nur durch Blut und Eisen. (Place in the hands of the King of Prussia the strongest possible military power, then he will be able to carry out the policy you wish; this policy cannot succeed through speeches, and shooting-matches, and songs; it can only be carried out through blood and iron.)"

—Otto von Bismarck (1886)

Gerontologists may remember Bismarck for establishing 65 years as the generally accepted age of retirement. Historians recall him as the brilliant "Iron Chancellor," whose ruthless policies led inevitably to the rise and fall of the Second and Third Reichs, bringing unprecedented bloodshed and suffering to Germany and to the world (Roux, 1971).

In the United States, national policies involving blood and iron fall within the purview of the Food and Drug Administration (FDA) of the Department of Health, Education, and Welfare (DHEW). Continuing controversy has surrounded the FDA proposals of April 1970 and December 1971 requiring iron fortification to 40 milligrams of iron per pound of enriched flour and 25 milligrams of iron per pound of enriched bread, rolls, or buns.

The FDA Commissioner further specified that iron "be added only in forms which are harmless and assimilable. The American Bakers Association and the Millers National Federation had previously proposed that enriched flour contain not less than 50 milligrams nor more than 60 milligrams of iron per pound, and that enriched bread, rolls, or buns contain not less than 32 milligrams nor more than 38 milligrams of iron per pound (Fine, 1971).

*The opinions or conclusions stated in this paper are those of the author and are not to be construed as official or as necessarily reflecting the policy of the South Carolina Department of Mental Health.

**Chief, Neurology Service, William S. Hall Psychiatric Institute, Columbia, South Carolina 29202

TABLE I

ORGANIZATIONAL RESPONSES TO FDA PROPOSAL FOR IRON FORTIFICATION

FOR

American College of Nutrition
American Dietetic Association
American Home Economics Association (Food and Nutrition Section)
American Medical Association (Council on Foods and Nutrition)
American Public Health Association (Food and Nutrition Section)
American Society for Clinical Nutrition
National Academy of Sciences-National Research Council (Food and Nutrition Board)

AGAINST

Allergy Foundation of America (Washington, D. C. Chapter)
Source: *Federal Register* 10/15/73

Responses to the FDA proposals are shown in Tables I and II.

Though other issues are involved, "more than 95 per cent of all respondents commented on the iron enrichment aspect of the proposal." In spite of this overwhelming expression of disapproval by consumers and by physicians, the FDA Commissioner authorized the proposed increases in the iron fortification of enriched flour and bread, effective October 9, 1973. Universal compliance with these standards is mandatory on April 15, 1974, "except as to any provisions that may be stayed by the filing of proper objections" (Schmidt, 1973).

For gerontologists, three crucial questions arise in the "blood and iron" policy of the Food and Drug Administration, as follows:

I. Is it needed?
II. Is it safe?
III. Is it ethical?

I. *Questions of Need*

Those favoring iron fortification cite widespread high prevalence rates of iron deficiency anemia disclosed by the *Ten-State Nutrition Survey, 1968-1970.*

The FDA asserts that the average iron intake in the United States has declined in recent decades due to decreased caloric intakes, that there is less contamination of foods with extraneous sources of iron, and that iron cooking vessels have virtually disappeared (Fine, 1971). If so, why is obesity a major American health problem, why do state governments continually strive to reduce iron contamination of potable water to the U.S. Public Health Service Standard of 0.3 parts per million and why have seven million cast iron cooking utensils been sold in the U.S.

TABLE II

OTHER RESPONSES TO FDA PROPOSAL FOR IRON FORTIFICATION

	For	*Against*
"Authorities on Iron"	21	5
Other Hematologists	0	24
Other Physicians	17	147
Other Professionals	62	31
Consumers	32	192

Source: *Federal Register* 10/15/73

TABLE III A

PER CENT DISTRIBUTION OF PERSONS AGED 45 UP

	LOW-INCOME RATIO			*HIGH-INCOME RATIO*		
	Black	*White*	*Total*	*Black*	*White*	*Total*
Census	3.9	24.6	28.5	1.9	29.0	30.9
Survey	12.8	11.4	24.2	4.6	20.3	24.9
Hgb. Def. (Males)	25.3	5.3	30.6	14.7	5.1	19.8
Hgb. Def. (Females)	8.2	1.7	9.9	4.9	1.5	6.4

Source: *Ten-State Nutrition Survey, 1968-1970.*

each year since World War II? The American adult's average daily intake of iron ranges from 10 to 15 mg, and simple nutritional deficiency is almost never the cause of iron deficiency in adults (Fairbanks, Fahey, and Beutler, 1971). Moreover, recent epidemiological studies in the United Kingdom disclosed no evidence of a greater prevalence of iron deficiency anemia in 229 male and 304 female subjects over 65 years of age than in younger subjects (Elwood, 1971).

As shown in Table III A, data from the *Ten-State Nutrition Survey 1968-1970* do not support claims of widespread high prevalence rates of iron deficiency anemia among persons aged 45 or older, except for black males in low-income ratio states. Demographic distortion is evident upon comparison of the *Survey* with the 1970 Census figures. In males over 13 years old, hemoglobin deficiency is defined in terms of values less than 12 grams per cent hemoglobin and for females, less than 10 grams per cent hemoglobin. However, low hemoglobin values do not necessarily imply iron deficiency. Moreover, a century of observations has not resolved a patchwork of conflicting reports concerning the manifestations of iron deficiency without anemia (Fairbanks, Fahey, and Beutler, 1971). Bismarck once said that politics is not an exact science; apparently, neither are nutrition surveys.

II. *Questions of Safety*

Intricacies of iron absorption are still incompletely understood, though painstaking balance studies have shown that iron is not excreted by the normal body (McCance and Widdowson, 1938). Even in states of marked iron overload, daily excretion of iron does not exceed 4 milligrams (Fairbanks, Fahey and Beutler, 1971) which approximates the "modest increases of 2 to 4 milligrams in daily iron intakes" proposed by FDA (Schmidt, 1973). Such increases could not only harm persons at risk for idiopathic hemochromatosis, Laennec's cirrhosis, sickle cell disease, and porphyria cutanea tarda, but also those persons at risk for Parkinson's disease (PD).

Strikingly increased body storage of mobilizable iron was demonstrated in 16 Parkinson's disease patients compared with 15 age matched control subjects, following a single 500 mg intramuscular injection of deferoxamine (Desferal) as shown in Table III B (Barbeau and Boileau, 1969).

No differences in blood values of iron, transferrin, or total iron-binding capacity were detected between the two groups (Barbeau and Boileau, 1969). Large

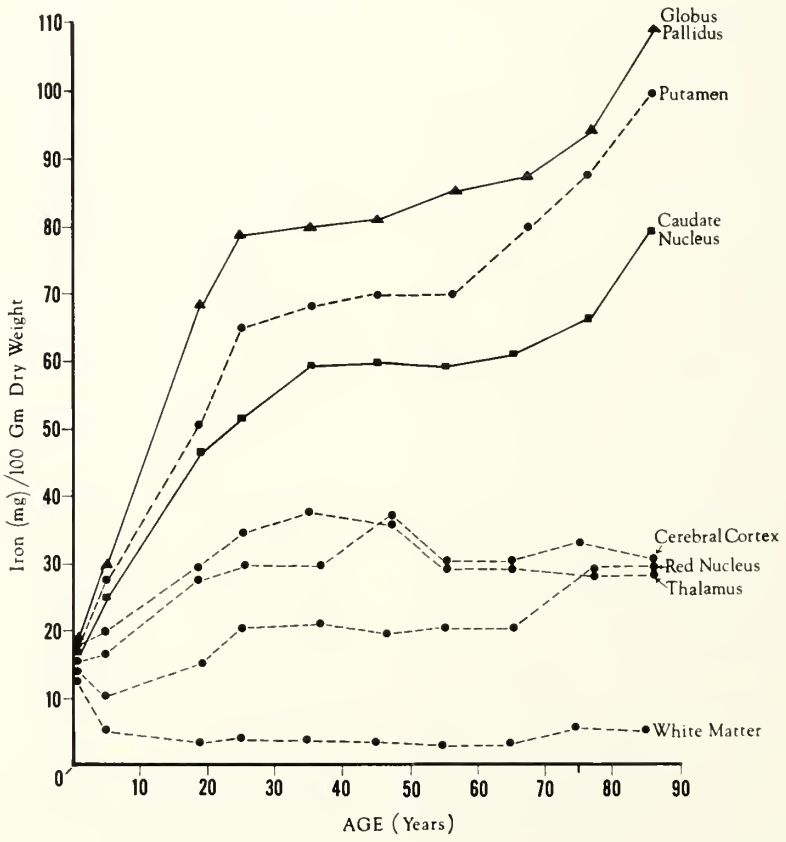
TABLE III B

	PD	CONTROL
Iron Excretion (mg/vol/6h.)	9.01±1.7	3.7±0.4
Iron Excretion (mg/g creatinine)	257.2±55.9	79.8±9.0

Source: Barbeau and Boileau (1969)

quantities of molecular iron had previously been found in Parkinsonian ventrolateral thalamus biopsy specimens and autopsy brain specimens (Rojas, et al. 1965; Asenjo, 1969). Moreover, measurement of total iron content of 105 Parkinsonian brain specimens by x-ray fluorescent spectroscopy revealed that iron levels were "consistently increased by a factor of two or more above normal." Though not specific for Parkinson's disease, these findings suggest severe alteration of the blood-brain barrier leading to generalized iron storage in Parkinsonian brain tissue (Earle, 1968). Biological iron has been known to be a potent intracellular oxidant since the last century (Spitzer, 1897), leading to increased formation of lipofuscin pigments (Porta and Hartroft, 1969). Originally recognized by Hannover (1842) and correlated with aging by Koneff (1886), neuronal lipofuscin is markedly increased in Parkinsonian brain, especially globus pallidus, which maintains the highest iron content in the brain throughout life, as shown in Figure I (Earle, 1968; Sundermann and Kempf, 1961). In contrast to thalamus and cor-

Fig. 1



Source: SUNDERMANN & KEMPF, 1961

tex where iron content leveled off about age 40, iron content of globus pallidus, putamen, caudate nucleus and red nucleus continued to increase throughout life. The change in slope of the curves for globus pallidus, putamen, and caudate at age 75 is particularly intriguing in view of epidemiological studies showing a peak incidence of Parkinsonism at the same age. Currently, at least 350,000 persons in the U.S. have Parkinson's disease, with consistently lower prevalence rates in the South (Kurtzke and Kurland, 1973). Review of Parkinson's disease at Charity Hospital in New Orleans for the period 1959-69 discloses that PD is observed about six times more frequently in white patients than in black patients (Paddison and Griffith, 1973). These findings may be explained on the basis of genetically determined intrinsic metabolic differences. However, death rates for whites aged 65 and over still are higher in the northwestern and north central regions and lowest in the southeastern and south central regions (Kurtzke and Kurland, 1973). These epidemiologic data for Parkinson's disease correlate surprisingly well with trends reported from the *Ten-State Nutrition Survey 1968-1970*, which indicated the highest prevalence of iron deficiency among blacks of low-income ratio states, including Louisiana, followed by blacks in highincome states. Lower prevalence of Parkinson's disease in the South thus may reflect consistently lower dietary iron intake throughout life for those individuals at risk to develop Parkinson's disease.

III. *Questions of Ethics*

Concern that higher iron intakes might lead to increased prevalence and/or severity of iron storage disorders, particularly hemochromatosis, was expressed by 73 per cent of those opposing the FDA proposal for iron fortification of bread and flour (Schmidt, 1973). In response, the FDA contracted in June 1971 with the Life Sciences Research Office, Federation of American Societies for Experimental Biology to: 1) prepare a comprehensive review of current knowledge concerning iron-storage phenomena in man; and 2) evaluate clinical research feasibility to determine whether implementation of iron fortification would in fact increase the prevalence and/or severity of pathological iron-storage phenomena. The latter study concluded that definitive clinical studies are not feasible, because very large numbers of people would have to be studied over decades in order to provide an unequivocal answer to the question, and interpretation of the results would be compromised by uncontrolled variables which are inevitable in long-term studies. Nevertheless, the Center for Disease Control has developed plans to study the effect of iron fortification in population groups known to have high prevalence rates of iron-deficiency anemia (White, 1972). Is this policy not a clear example of human nutritional experimentation on an unprecedented scale in the United States, involving millions of American citizens without their informed consent? Current policy proposed by DHEW on October 9, 1973 states "Any organization proposing to place any subject at risk is obligated to obtain and document informed consent. 'Subject at risk' means any individual who may be exposed to the possibility of harm — physical, psychological, social, or other — as a consequence of participation as a subject in any research, development, or demonstration activity which goes beyond the application of those established and accepted methods necessary to meet his needs" (Weinberger, 1973).

In summary, multidisciplinary studies are urgently required to give unequivocal answers to critical questions of need, safety, and ethics before gerontologists can be satisfied "that the proposed increase in iron content of enriched flours and enriched bread . . . will not jeopardize the health of normal males (or females), and that the additional iron will not increase the incidence of hemochromatosis or other hereditary iron storage dis-

orders." Pending completion of such studies, all iron fortification of foods should be discontinued.

The author wishes to thank Malcolm U. Dantzler, M.D., Deputy Commissioner for Medical Care, South Carolina Department of Health and Environmental Control, for advice and assistance regarding data from the *Ten-State Nutrition Survey, 1968-1970*. Gordon Shigner, Med. Illustr., is due thanks for preparation of the figure.

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RECENT ADVANCES IN PEDIATRIC RESPIRATORY DISEASE PART II: STATUS ASTHMATICUS

CHARLES T. WALLACE, M.D.*

(Dr. Wallace has recently completed a Fellowship in Pediatric Anesthesiology and Respiratory Care at Childrens Hospital in Philadelphia working with Drs. John J. Downes, Jr. and Russell C. Raphaely. Drs. Downes and Raphaely along with Drs. Harold I. Lecks and David W. Wood have pioneered a radically new treatment for respiratory failure in childhood status asthmaticus. Instead of using mechanical ventilation, they administered isoproterenol intravenously with great success. Their regimen is presented below.)

Asthma, which affects approximately 1.5 million children in the United States, is the most common chronic pulmonary disease seen in pediatrics.[1] Fortunately, most acute asthmatic episodes respond to remedies available in the home or physicians office;[2] unfortunately, a few may progress to a syndrome known as status asthmaticus (see figure 1).[3] In infancy and childhood this syndrome may result in respiratory failure and death[4]—nearly 6,000 patients die from status asthmaticus each year.[5]

Acute upper respiratory infections appear to be a precipitating factor, but the exact mechanisms responsible for initiating status asthmaticus remain unknown.[4] Variable combinations of allergic, infectious, emotional, and environmental factors may be involved.[6] Chronic infection and hypercapnia usually are not problems as they are in the adult,[6,7] but the bronchomotor system is much more labile in the asthmatic child.[1] The child may be completely healthy and within an hour become critically ill.

The actual attack itself is manifest by a tremendous increase in work of breathing to combat the airway resistance produced by muscle spasm, edema, and nonpurulent inspissated secretions in the bronchi and bronchioles. Trapping of gas occurs in the asthmatic lung and produces an increase in residual volume and functional residual capacity.[4]

Along with the disorders of pulmonary function, clinically significant alterations take place in arterial blood gases and pH. Hyperventilation occurs early in the attack producing a slight reduction of arterial carbon dioxide tension ($PaCO_2$). Even though minute ventilation is increased, hypoxemia occurs from maldistribution of gas in the lung and right to left shunting of blood through atelectatic segments.[4]

FIGURE 1[8]

Diagnosis of Status Asthmaticus

1. Allergic history.
2. Bilateral intense wheezing.
3. Thoracic hyperinflation.
4. Epinephrine resistance (no sustained improvement after two doses of aqueous epinephrine 0.01 mg/kg within a 30 minute period).
5. Elimination of other causes of respiratory distress.

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Metabolic acidosis occurs due to:1) ketonemia from inadequate caloric intake and the mobilization of fatty acids by increased production of catecholamines; and 2) small increases in lactic and pyruvic acids.[4,8]

After a period of time has elapsed, the child may become tired, much as in croup.[9] A decrease in minute ventilation results with subsequent hypercarbia and acidosis leading to respiratory failure. If not promptly reversed, circulatory depression and cardiac arrest may occur.[4]

Depending upon the frequency and severity of attacks, the chronic use of bronchodilators, prevention and vigorous treatment of respiratory tract infections, and training in tracheobronchial toilet have been the cornerstones of asthma maintenance.[5] When preventive maintenance and initial asthma therapy fails, the child should be admitted to the hospital where close observation and vigorous medical therapy can be administered. If this fails, mechanical ventilation has been the preferred treatment, and in most instances has been life saving. Unfortunately complications, such as subcutaneous emphysema, pneumothorax, tension pneumothorax and cardiac tamponade, airway disconnection, ventilator failure, sub- glottic stenosis, sepsis, and cardiac arrest have occurred.[10,12]

Because mechanical ventilation was required as treatment for respiratory failure occurring in 12 of 20 patients with status asthmaticus, and dissatisfied with the high incidence of complications,[4,8,12] Downes and associates searched for a safer technique to manage respiratory failure in childhood status asthmaticus. They finally adopted a therapy originated by Harwood and Talner and have recently reported on its effectiveness.[10,11]

PROCEDURE

After other causes of respiratory distress are eliminated,[9] all children with a diagnosis of status asthmaticus are treated with a vigorous medical regimen (see figure 2).[11] In order to carefully evaluate the course of the disease and efficacy of therapy, a clinical asthma score was devised,[2] (see figure 3) much like the clinical croup score.[9] This score attempts to evaluate oxygenation (arterial blood gas measurements should be used if available), gas exchange, work of breathing, airway obstruction, and cerebral function as affected by fatigue, hypoxia, or CO_2 narcosis.[2] The medical regimen is considered to have failed when a child with a diagnosis of status asthmaticus has had no sustained improvement with humidified O_2, aminophyllin, isoproterenol by IPPB,

FIGURE 2[8]

Routine Therapy

1. Humidified O_2 with FiO_2 0.4-0.6
2. Twice normal maintenance fluid.
3. Bronchodilators:

Epinephrine –0.01mg/kg subcutaneously Q3-4H

Isoproterenol –5cc 1/800 with IPPB for 10-15 minutes Q4H

Aminophyllin –3-6mg/kg Q6H (½ dose given over 20 minute period)

4. Hydrocortisone –12mg/kg/day IV (for patients previously on steroids and patients with pCO_2 greater than 55)
5. $NaHCO_3$ 1.5-3.0mEq/kg IV for pH less than 7.30 (may cause transient increased pCO_2-THAM may be used instead).
6. Sedation with Valium 0.1mg/kg IV if absolutely necessary (carefully observe respirations).

FIGURE 3[2]

*Clinical Asthma Evaluation Score**

	0	1	2
PO_2** or Cyanosis	70-100 in air None	70 in air In air	70 in 40% O_2 In 40% O_2
Inspiratory breath sounds	Normal	Unequal	Decreased to absent
Accessory muscles used	None	Moderate	Maximal
Expiratory wheezing	None	Moderate	Marked
Cerebral function	Normal	Depressed or agitated	Coma

*This score is designed for use in children with status asthmaticus. A score of 5 or more is thought to be indicative of impending respiratory failure. A score of 7 or more with an arterial carbon dioxide tension (PCO_2) 65 mm Hg indicates existing respiratory failure.
**Arterial oxygen tension.

and $NaHCO_3$ as documented by pCO_2 greater than or equal to 55 torr and an asthma score greater than or equal to 5.

The child is then placed in an intensive care unit. Humidified O_2 is continued in concentrations intended to provide a PaO_2 of 90-120 torr. The ECG and heart rate are monitored and an arterial cannula inserted (usually 20g plastic catheter in a radial artery) for blood pressure monitoring and arterial blood gas analysis. Sodium bicarbonate or THAM is administered prior to beginning the isoproterenol infusion to raise the arterial pH to 7.20 or higher. Isoproterenol is then infused through a reliable indwelling plastic venous catheter at an initial rate of 0.1 ug/kg/min. The asthma score and heart rate and rhythm are observed constantly and arterial blood gas samples analyzed at 5-15 minute intervals. The rate of isoproterenol infusion is increased by 0.1 ug/kg/min every 15 minutes until improvement occurs (10% reduction in $PaCO_2$ or decrease in asthma score). The infusion is stopped when the $PaCO_2$ remains below 45 torr (asthma score below 4) at a dose of 0.1 ug/kg/min.

If the $PaCO_2$ increases to greater than 75 torr despite an isoproterenol infusion of greater than 1.5 ug/kg/min, the patient is intubated, curarized, and mechanically ventilated.[10,11]

RESULTS

Twenty (20) episodes of respiratory failure in 16 children with status asthmaticus were treated with isoproterenol infusion. In 18 episodes, a prompt and sustained reduction in $PaCO_2$ occurred. The dosage necessary to achieve a reduction of 16 torr (from a mean of 71 torr to 55 torr) averaged 0.37 ug/kg/min and required 1.7 hours. A mean peak dose of 0.8 ug/kg/min and an average infusion of 10 hours was required to reduce $PaCO_2$ further. Considerable variation occurred with peak doses ranging from 0.08 to 1.60 ug/kg/min and an average infusion period of 45 hours.

Two failures occurred in these 20 episodes. One 16 month old infant developed ventricular tachycardia which responded to cessation of the infusion. The infant was then treated successfully with aminophyllin. A three-year-old child initially responded to the infusion, but his $PaCO_2$ then rose to 102 torr. He was treated successfully with mechanical ventilation.

Tachycardia was a common finding, reaching a mean of 163 beats/min at the

peak of infusion. Heart rate ranged from 120-190 beats/min.

There were no other complications and no evidence of myocardial injury from the isoproterenol dosages used.[10,11]

SUMMARY

Status asthmaticus in infancy and childhood can result in respiratory failure and death. In a previous study by Downes and associates, 12 of 20 children with respiratory failure resulting from status asthmaticus required mechanical ventilation. While mechanical ventilation is lifesaving, it has been associated with complications such as pneumothorax, sepsis, accidental disconnection, sub-glottic stenosis, and death. In their most recent study, 18 of 20 children responded after substituting intravenous isoproterenol for mechanical ventilation. Of the two failures only one patient required mechanical ventilation.

Many other methods of prevention and treatment of asthma and status asthmaticus have been and are being investigated. Prevention of attacks with cromolyn sodium (an inhibitor of histamine release),[13] intensive treatment with $NaHCO_3$ and isoproterenol via IPPB,[5] and newer drugs such as salbutamol (a Beta receptor stimulant with a more pronounced bronchial smooth muscle effect), may prove to be helpful in the future.

Continuous intravenous infusion of isoproterenol has been proven to: 1) reduce the need for mechanical ventilation; 2) shorten the duration of severe hypercapnia; and 3) exhibit few complications.[11] This new technique deserves extensive clinical trial and is thusly recommended as an advance in pediatric respiratory disease.

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CLINICOPATHOLOGICAL CONFERENCE

OF

THE MEDICAL UNIVERSITY OF SOUTH CAROLINA

"Convulsion in a 55 Year Old Man with Protracted Chronic Osteomyelitis"

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RADIOLOGIST: Charles N. Griffin, Jr., M. D.
PATHOLOGIST: Jane T. Gaede, M. D.

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The patient was a 55-year-old white male who was admitted to the Charleston Veteran's Hospital for the seventh time on June 3, 1973. All of his previous admissions had been related to chronic osteomyelitis of the right distal femur, culminating in an above-the-knee amputation on February 23, 1973. Since the amputation, the patient had done well and was ambulatory. Then, on the night of June 3, while on the toilet, the patient suddenly felt weak and called for assistance. His wife reported that when she reached him he had fallen to the floor and was having a "seizure," characterized by jerking of his arms and legs, eyes rolling back, and fecal incontinence. The son-in-law was called; he reported that when he arrived the patient's heart had stopped and he immediately began to "beat on his (the patient's) chest." The patient was then brought by ambulance to the Veteran's Hospital, arriving at 11:55 p.m. External cardiac massage had been continued by the ambulance attendants during the trip to the hospital.

The patient's past medical history revealed no previous seizure disorder. He had sustained a gunshot wound of the right distal thigh in 1948. Approximately ten years later, he developed a draining sinus tract in the area of the wound. He was admitted to the Veteran's Hospital numerous times for incision and drainage of the lesion. A sequestrectomy was performed in November 1970. Various organisms were grown at different times from cultures of the wound, including group Alpha-beta hemolytic streptococci, Pseudomonas, and Serratia. Amputation was finally performed in February 1973. Other previous problems had included: (1) a herniated cervical nucleus pulposus which had been removed in 1966 with good relief of symptoms; and (2) duodenal ulcer disease which had been treated medically with apparent healing, as an upper gastro-intestinal series on July 11, 1972, showed only a small sliding hiatus hernia and no evidence of an ulcer crater. The patient was a heavy cigarette smoker and was said to consume approximately six beers per day. He was allergic to penicillin. He was currently taking no medicines except Elavil, which had been prescribed by the orthopedic surgeons for phantom limb pain following his amputation.

At the time of admission, the patient was described as being combative, confused, and disoriented, thrashing about on the examining table. Vital signs were: temperature 98.6 F, pulse 96 and blood pressure 110/70. The head was normocephalic without evidence of trauma and no nuchal rigidity. Extraocular muscles were intact. The pupils were equal and reactive to light. The fundi could not be visualized because of lack of patient cooperation. A few small lacerations were noted on the lips and tongue. The chest was clear to percussion and auscultation. The cardiac rhythm was regular with no murmurs or gallops. Neck veins were not distended. The abdomen was soft and non-tender. The liver edge extended two centimeters below the right costal margin; there were no other palpable organs or masses. On rectal examination the prostate was not enlarged or nodular. No abnormalities were detected on neurologic examination. There was no lymphadenopathy. Laboratory data disclosed a hemoglobin of 13.8 grams, a hematocrit of 40 per cent, leucocytes 28,900 with 60 neutrophils and 34 lymphocytes. Platelets were 282,000, blood sugar was 218, blood urea nitrogen 10, sodium 143, potassium 3.8, chlorides 100, CO_2 combining power 11, pH 7.52, pO_2 72, pCO_2 28, oxygen saturation 95.4 per cent; urinalysis showed a clear yellow specimen with specific gravity 1.018, pH 5, 1

plus glucose, a trace of protein with no blood or ketones. The differential diagnosis on admission included acute myocardial infarction, pulmonary embolization, and cardiac arrhythmia with syncopal episode. The patient was taken immediately to the intensive care unit and was given intravenous fluids and nasal oxygen. An immediate portable chest x-ray showed no abnormalities. The electrocardiogram was thought by the house staff to be suggestive of an old anteroseptal infarct, but the cardiologist's interpretation was that there were only non-specific T-wave changes with no significant change since the last tracing. (The patient had previously had normal electrocardiograms on 11-20-70 and 7-10-72). Over a period of several hours, the patient became more oriented and less combative but could not remember anything about the events leading up to his hospitalization. A lung scan on the morning of June 4 was reported as "Decreased perfusion is observed in the left and right lower lungs. This abnormality is consistent with but not diagnostic of pulmonary emboli." At about 4:00 p.m. that day the patient developed a sudden episode of hypertension (210/100) with profuse sweating, dyspnea, and facial cyanosis, followed by bradycardia. The patient was treated with nasotracheal intubation and intravenous atropine. Blood pressure decreased to 140/80, and the patient subsequently resumed a normal rate of breathing after removal of the nasotracheal tube. The patient was begun on Heparin, 7000 units intravenously every four hours for suspected pulmonary emboli. He spent a quiet night, resting and sleeping intermittently. Additional laboratory studies: total protein, albumin, calcium, phosphorus, cholesterol, uric acid, creatinine, total and direct bilirubin, alkaline phosphatase, and glutamic oxalacetic transaminase were within normal limits. Lactic dehydrogenase was 258 and 276 (normal 100-225). On the evening of June 5, the patient experienced another episode of bradycardia which again responded to atropine. He was also nauseated and vomited approximately 15 cc. of dark guaiac positive material. At 10:00 p.m. there was another episode of bradycardia, followed by apparent supraventricular tachycardia and prolonged respiratory arrest. The patient was treated vigorously with intravenous Xylocaine, nasotracheal intubation, defibrillation, intravenous Digoxin, and intravenous sodium bicarbonate. His cardiac rate decreased from 180 to 150; however, he remained unresponsive and at 12:30 a.m. his pupils had become fixed and dilated. Blood pressure and heart rate gradually decreased followed by cessation of spontaneous cardiac activity or respiration. The patient was pronounced dead at 4:15 a.m., June 6, 1973.

Dr. Simons: I think the case is replete with red herrings which I will attempt to seine out of the case. It is essentially a case in which the patient has a warning of impending doom or catastrophe, experiences a convulsion, lives two days and dies a respiratory death. He was on the commode doing what I presume to be a Valsalva maneuver. During the period of straining, venous return is sharply curtailed and cardiac output decreased so that systolic pressure falls. When strain is suddenly stopped and the glottis is released blood rushed into the thorax and the resurgent cardiac output is forced into an arterial system whose outflow resistance has been increased. This results in an overshoot of arterial pressure with reflex readjustments leading to bradycardia and decline in blood pressure to prestrain levels. The central venous pressure shows a marked increase during straining, quite enough to liberate a blood clot from a pelvic vein and to raise the intracranial pressure for a while. I don't know that I have actually seen coronary attacks occur in this way, but I have certainly seen pulmonary embolism, and it appears reasonable that various intracranial lesions might be aggravated. In any event, he does a Valsalva maneuver, has a warning of something happening, calls his wife and then has a true convulsion. This was not syncope of postural, micturition or vertebral artery type. He had a definite convulsion with rectal incontinence and post-convulsive mental confusion. This was not a Stokes-Adam attack. He has not had preceding bradycardia or had heart block that anyone knows about. Patients with a Stokes-Adam attack shouldn't really convulse. Could it be epilepsy? I suppose it could, but the progressive clinical deterioration is against it. The three things that you were taught to think about in a catastrophe of this type were coronary arterial occlusion, acute pancreatitis, and perforated ulcer. Pulmonary embolus should

certainly be added as probably the major culprit in this list. I am going to quickly throw out pancreatitis and a perforated ulcer. He had no pain, ileus did not develop and the calcium was normal. He did have nausea and vomiting with hematemesis as well as a known previous ulcer. However he had a hiatal hernia, was under stress, and had been intubated, any of which could produce erosions. Coronary occlusion or insufficiency is difficult to eliminate. There is the question of asystole or bradycardia when he comes to the hospital. I prefer to think the ambulance attendants and the son-in-law found a very slow bradycardia rather than asystole and that their manual success in reviving him was related to the fact that his heart was beating anyhow. There was no change in the electrocardiogram. This has got to be accepted as valid. The enzymes stayed normal except for the lactic dehydrogenase (LDH) which was slightly elevated. He had no pain. He did have an arrhythmia and some relative hypotension, but I am not at all convinced that his trouble was cardiac.

Pulmonary embolus is even more difficult to eliminate than coronary occlusion. Dr. Griffin, would you review the radiographic findings?

Dr. Griffin: It is interesting to note that this patient on June 4 was quite ill, so ill that he could not be transported to the x-ray department so a portable film was obtained. Later that day he improved considerably and was taken to nuclear medicine where a lung scan was done. Nuclear medicine always likes to have a chest x-ray for comparison so the patient was sent over to the Radiology department for upright films of the chest. Unfortunately we never interpret these films made for Nuclear medicine until a conference comes along. We never had the benefit of seeing the standard projection chest films which were obtained shortly after his admission. Instead we are sandwiched in between these two portable chest films which are of significantly inferior quality technically. The possibility that we were looking for was pulmonary embolism or subsequent infarction and the findings suggestive of embolism may be very subtle. This diagnosis requires good films taken in standard projections. The diagnosis is virtually impossible to make on portable films unless there has been progression to frank infarction of the lung. We look for some loss of normal pulmonary vasculature, increase in size of one of the main pulmonary arteries, prominence of a pulmonary artery segment, or a very small pleural effusion. These are very difficult things to see and one is never going to see them on a portable film. When we are looking for subtle changes we have got to have good standard films. Fortunately the Nuclear medicine films do not show any definite changes, but if they had, we would probably not have been able to detect the changes suggestive of pulmonary embolism with portable equipment. This demands good positioning and good pictures under close supervision. There are no pulmonary infiltrates. The pulmonary scan appears to show some diminished circulation in the lower lung fields. The lung scan measures the flow of the isotope through the lungs through the pulmonary arterial circulation but it does not measure the flow through the bronchial circulation which is the normal blood supply to the lung. Anything that inhibits the regular pulmonary arterial circulation may show a decreased perfusion. These can be atelectasis, an acute inflammatory process, a pulmonary embolus, subsequent infarction, or emphysematous changes.

The findings are consistent with pulmonary embolism but not diagnostic. I do not believe there is free air in the peritoneal cavity but I would have to have flat upright views of the abdomen to make a conclusive statement.

Dr. Simons: He has been in a wheelchair, had a recent operation, he underwent a Valsalva maneuver and the lung scan is compatible with it and his PO_2 is

down. These findings and circumstances are certainly in favor of it, but I do not think he had a pulmonary embolus. He had a true convulsion, not a syncopal attack, followed by disorientation, not the usual events with pulmonary embolization. He had no dyspnea, no clear cut chest pain or sensation of thoracic oppression, and the enzymes stayed normal as did the bilirubin. If he had a pulmonary embolus large enough to kill him, I think these ought to have been elevated. Did he have an aspiration pneumonia with formation of a lung abscess and die as a result of that? His vomiting episode, the only one that is documented, is at 9:30 in the evening, seven hours before he died. That would be awfully quick. The radiographs do not suggest it. I don't think he had that. Carcinoma of the lung with brain metastasis usually produces personality changes with sufficient warning that something is amiss. This man is said to have been on a boating trip the day before and by implication he was feeling better than he had in some time. Secondary amyloidosis would be more likely to produce a renal death than anything else. You should have some interference with kidney function. The man has had chronic osteomyelitis for more than 20 years and he has had a chronic bronchitis for a long time. He had an enlarged liver. He not only had previous infections, but there are hints that he still had an infection. The nurses' notes indicate he was running around 100-100.4 degrees rectally. He told the nurses he had a little headache. You have got to listen to the patient, and the only things I can gather he said from conversations with the nurses is that he wanted his wife, a cigarette, and that he had a headache. Those are the only informative things.

There are a number of so-called silent areas in the body, places that one can have pus, perhaps suspect it, but not be able to localize it accurately. Pericolic abscesses secondary to diverticulitis, perirenal and intrahepatic abscesses, very frequently chronic pyelonephritis, and occasionally subacute bacterial endocarditis are some of the sites which may cause such difficulties. Outstanding in this regard are deep seated infections of the central nervous system. The man didn't have much of a fever, but he had a white blood count that I thought was startling. By all indications he died a respiratory death, rather than a cardiac death. What do I think the man had? I think he had a chronic brain abscess which is a fairly common complication in chronic infections of long duration and is notoriously silent and apt to be unsuspected. Tuberculous, no; fungus probably not. I think he had a chronic brain abscess in the left cerebrum that ruptured or extended during a Valsalva maneuver and was accompanied by a moderate amount of secondary amyloidosis. I don't think the latter killed him. I think he probably had a stress ulcer in his stomach and he may have had a terminal pneumonia. I have left some loose

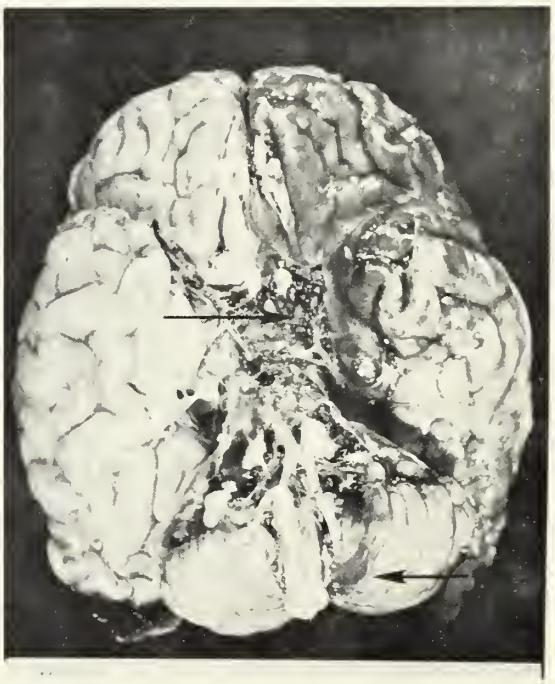


Fig. 1 Subarachnoid hemorrhage over left cerebral hemisphere with ruptured berry aneurysm as indicated by upper arrow. The herniation and discoloration of the cerebellar tonsil is shown by lower arrow.

ends but this is as close as I can resolve the problem.

Clinical Diagnosis: Multiple pulmonary emboli.

Dr. Simon's Diagnosis: Chronic cerebral abscess with rupture or extension produced by a Valsalva maneuver.

Dr. Gaede: The cause of death was a ruptured berry aneurysm situated at the junction of the posterior communicating artery with the internal carotid artery (figs. 1 and 2). In addition to the subarachnoid hemorrhage there was extension of the hemorrhage into the adjacent brain (left temporal lobe) with terminal intraventricular hemorrhage (fig. 3). The greatly increased intracranial pressure is indicated by the herniation of the cerebellar tonsils (fig. 1).

Careful search disclosed no pulmonary emboli. Although there was a severe degree of coronary atherosclerosis there was no evidence of either old or recent myocardial infarcts.

These aneurysms most frequently occur at the bifurcations of the arteries forming the Circle of Willis. They are frequently termed congenital or medial defect aneurysms because of the absence of the media and elastic lamina in the aneurysmal pouch.

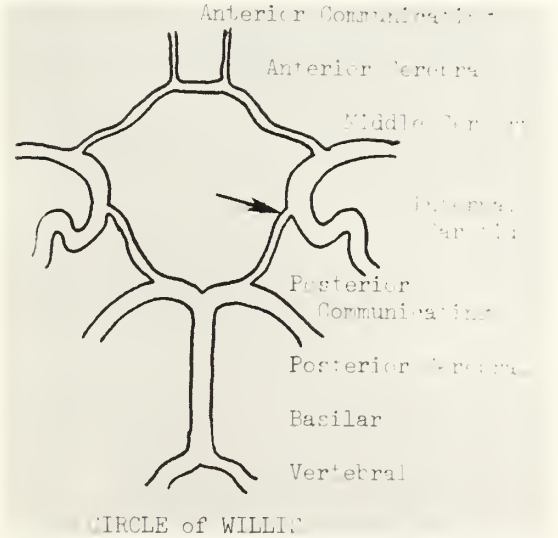


Fig. 2 Location of berry aneurysm. They usually occur at bifurcations of the arteries composing the Circle of Willis.



Fig. 3 Hematoma of left temporal lobe due to dissection of the hemorrhage from the ruptured aneurysm into brain substance. Clot may be seen within the ventricular system (arrow).

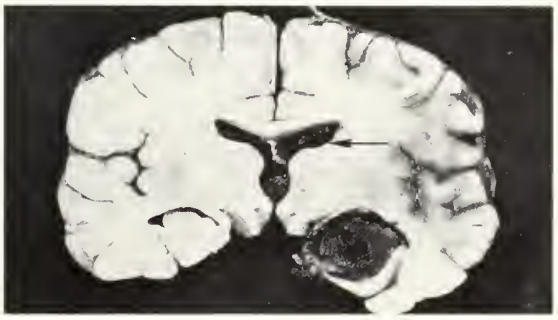


Fig. 4 Disappearance of media in neck of aneurysm sac in upper picture with loss of elastic lamina in lower photograph. The lower arrow indicates the aneurysmal cavity.
Hematoxylin and Eosin x 125
Verhoeff-Van-Giesen x 250

Although the precipitating events that lead to rupture are not well understood, attention has been called to the possible importance of transient arterial hypertension because of the frequency with which rupture of the aneurysm takes place during physical exertion or at a time of emotion, particularly in young adults. Dr. Simons was therefore probably correct in his assumption that the Valsalva maneuver precipitated the intracranial mishap.

FINAL PATHOLOGICAL DIAGNOSIS: RUPTURED BERRY ANEURYSM WITH EXTENSION INTO BRAIN AND INTRAVENTRICULAR HEMORRHAGE.

JOHANN PETER FRANK:
FATHER OF SOCIALIZED MEDICINE

JOHN P. DOLAN, Ph.D*

Although the origins of modern socialism are generally traced by historians to the reaction against evils of the industrial revolution in 19th century France and England by such well known figures as Saint-Simon, Louis Blanc, and Robert Owen, it is a curious fact that the first grand design for socialized medicine came from the pen of a little-known German physician whose place of origin and area of practice saw little or nothing of the baleful effects of industrialization. Johann Peter Frank was born in the Bavarian village of Rodablen in 1745 not far from the shores of Lake Constance, an area that remains even to this day untainted by the pollutants of modern industry. No wild-eyed revolutionary, he moved freely in the most aristocratic circles of Napoleonic Europe. He was a close associate of the Hapsburgh Emperor Joseph II and was for three years personal physician to the Russian czar Alexander. He listed among his clients the King of Rome, Francis Napoleon, son of Napoleon and Marie-Louise, and Ludwig Beethoven.

Frank, whose parents were of French and German origin, was educated in the classics and philosophy at Jesuit schools in Rastadt and Pont a Mousson. After turning to medical studies, he followed a bilingual pattern studying in Heidelberg and Strassbourg. He was licensed in both France and Germany after receiving a medical degree from the University of Heidelburg in 1766. Following a few years of practice in Lorraine, he returned to his native Germany. The next decade found him active in a number of fields. He was placed in charge of the garrison hospital in Rastadt, established a school for midwives in the same city, and after 1773 was appointed personal physician to the Prince-Bishop of Trier. It was during this period that he began compiling material for his monumental work on public health, *System einer vollstandiegen medicinische Polizey* (*A Complete System of Medical Police*). Although the first draft was rejected by the publishers, Frank was undaunted in his determination to create a program for state control of health that would reach from the womb to the tomb. It was not until 1779 that the first of the six volume *opus* was published in Manheim.

In the lengthy introduction to the work he stresses the fact that the purpose of the science of policing is the inner security of the state, a considerable part of which has to do with the health of the citizens living in society as well as the health of the livestock required for work and sustenance.[1] The first volume concerns itself with what Frank considers the very foundation of all society, the institution of marriage. He is convinced that all who are physically and mentally healthy should enter matrimony. His bold statement that enforced clerical celibacy was a source of innumerable evils, spiritual as well as physical, was unwelcome in Catholic Bavaria, as was his suggestion that unwed mothers and their offspring be supported by the state. The American Associated Milk Producers would not have endorsed his recommendation that mother's milk rather than that of cows and goats be provided for children in orphanages.[2] A program of public education that includes free meals, more comfortable seating arrangements, and dancing lessons is out-

*This article is from a forthcoming book, A Documentary History of Medicine by W. N. Adams Smith and John P. Dolan of the University of South Carolina.

lined in detail.

Much of the first volume is given to moralizing. Poverty, especially when it follows prosperity, he blames not only for a breakdown in morals but for much of the sickness and disease of his time.[3] Venereal disease is a special object of his concern for greater state control of health. Statistics are quoted to demonstrate that venereal disease has killed as many people in Europe as have war, famine, and plague combined.[4]

The second volume of *Polizey* appeared in 1780 and the third was published in 1783. In these volumes he extended his medical plan over an even larger area. Control and supervision of the production and distribution of foodstuffs is urged. Stringent regulations on slaughtering of animals as well as control over poultry and fish are required. Inspection of the hygenic conditions of the market place is to be carried out on a regular basis by state appointed inspectors.

Ecologists and conservationists will detect a familiar ring in his urging that a cleaner and more healthy atmosphere can be assured if forest preserves are maintained. Deforestation, he writes, has altered the climate of much of Europe—Italy, Germany, Hungary and Poland.[5] Uncontrolled consumption of wood has brought untold suffering to those who depend upon it for fuel in those regions that lack coal and turf.[6] He cites the islands of Jamaica and Barbados as examples of how denuding the land of forests has increased the temperatures of these regions and led to various diseases.[7] Pomposity and ostentation also come within the range of state control. Frank is adamant in his attack on the current practice of riding in coaches rather than walking. He offers statistics indicating the tremendous increase in the number of horse drawn carriages in Paris and London. In Italy, he writes, it is considered a disgrace and below the dignity of the upper classes to walk even the shortest distance.[8]

By the time Frank had published the third volume of the *Polizey,* his reputation as a pioneer in the field of public health had been established on an international basis. In 1784 he was given a chair of medicine at the University of Gottingen and a year later appointed to an even more prestigious post at the University of Pavia in Italy. Lombardy was at that time part of the Austrian Empire and the new position brought him into close association with the imperial court in Vienna. He was later appointed Protophysicus, or medical director, for all of Lombardy. During the following decade, in addition to work on his universal public health plan, he completely reorganized the medical faculty of the University of Pavia, revived the curriculum, and introduced courses for midwives and apothecaries. He also founded a pathological museum and a chemical laboratory. Two important tracts, *De vertebralis columnae in morbis dignitate* (on diseases of the spinal cord) and *De curandis hominum morpisn morbis epitome* (on therapeutics), were also published at this time.

In 1795 he was called to Vienna, appointed director of the General Hospital, and given a chair of clinical medicine at the university. During the 18th century, thanks to the efforts of Gerhard van Sweiten and Anton de Haen, the University of Vienna was one of the best medical schools in Europe. Here, as in Pavia, Frank revived the curriculum, set up a pathological museum, and directed a medical clinic that attracted students from all over Europe. His lectures, delivered in flawless Latin, were considered masterpieces of the latest medical knowledge.

In 1804 Frank was summoned to Russia, first lecturing in Vilna and later becoming personal physician to Czar Alexander and director of the Medical-Surgical Academy in St. Petersburg. He remained in Russia until 1817 when he returned to Vienna and private practice. He published the sixth and final volume of the *Polizey* in 1818. It was entitled *On the Art of Medicine in*

General and its Influence on the Well-being of the State and lacked none of the critical apparatus of the earlier volumes. Three years later, on April 24, 1821, Frank passed away.

Frank's plan for socialized medicine was a blend of Utopian idealism and the scientific philosophy of the Enlightenment. In a certain sense he was the last great spokesman of a tradition going back to Descartes, who said a century earlier that if any great improvement in the condition of mankind was to be brought about, medicine would provide the means. He was neither the first nor the last to write on the subject of state control of health but he was certainly the most influential. The later work of Pettenkofer and Chadwick would have been inconceivable without him.

Historians have differed considerably in evaluating his contribution to modern medicine. Henry Sigerist finds him representative of the paternalistic absolutism of the Austrian monarchs: "His ideal is a system of policing with a book of laws which would prescribe for people what they would have to do in order to be healthy from the time of their birth until their death."[9] R. H. Major writes of him: "His naive enthusiasm for the regulations he proposed and his belief that laws could transform theories into facts, betray a deep ignorance of human nature and a disregard for the instinct of personal independence."[10] Fielding Garrison considers *Polizey* as the very foundation of modern public hygiene: "In the preventive medicine of the future Frank will loom larger with meaning for he was himself a true modern."[11] More recently the Swiss historian Gerhard Venzmer extolls him as one of the most significant physicians of all time and as the real founder of public health practices.[12] Frank wrote shortly before his death, "The little slip of a tree which I planted as the founder of Police Medicine has, after not too long an interval, grown to an oak that spreads its branches over Europe and bears fruit that I truly had not expected to ripen so soon."[13]

REFERENCES

1. "Die innere Sicherheit des Staates ist der Gegenstand der allgemeinen Policey-wissenschaft; ein sehr ansehnlicher Theil davon ist die Wissenschaft, das Gesundheitwohl der in Gesellschaft lebenden Menschen, und derjenigen Thiers, deren zu ihren Arbeiten und Unterhalt bedurfen, nach gewissen Grundsatzen zuhandhaben." Frank, J.: System einer vollstandigen medicinische Polizey I, 3-4.
2. "Vor allen denen, welche man mit Kuh-oder Ziegenmilch genahret hatte, sah man keines sein Leben uber 4 Monat brigen. ibid II, 458.
3. "Die Armuth, welche auf Wohlstand folge, sucht sich so lang als moglich zu verbergen, und selbst die Gewohnheit verschwenderisch zu leben, macht, das man sich seinem Sichicksale so leicht nicht ergiebt; hier ist der Augenblick in welchem selbst die Sitten die grosste Gefahr leiden, und alle moglische Mittel werden versucht, wie man sich bey seiner alten Lebensart erhalten mogg. ibid I, 21.
4. "Hume ist der meinung, dass die Venerische Krankheiten so viele Menschen in Europa getodtet haven, als Kreig, Hunger, und Pest zugleich zo todten in Stand gewesen waren. Journal etranger, 1758, mois Octobre. ibid I, 58.
5. "Durch das Ausbauen der Walder zu anderem Gebrauche des Erdreichs, ist unser Klima unstreitig geminder gemacht worden, so wie jenes von Italien, einer marmeren Luft, als zu Augustus Zeiten, dermalen geniesst, seitdem die benachbarten Reiche Ungarn, Pohlen, und Deutschland selbsten, mehr angebaut und also warmer sind, als vor diesem." ibid I,37.
6. "Der Holzmangel ist besonders in Landern, wo man weder Steinkohlen noch Torf au brennen hat, eine ausserst wichtige Ursache zu Krankheiten unter Armen, welche meistens nicht mit hinlanglichen Kleidern und Decken versehen sind." ibid I, 41.
7. "Die Einwohner von Jamaica und von der Insel Barbados sind, durch unuberlegtes Aushauen der mehrsten ihrer Walder, alles nothigen Schattens beraubt worden und stehen nun der grossen Hitze des Klimas, mehr Krankheiten aus, also jemals." ibid I,38.
8. "In ganz Italien ist unter allen auch nur wenig vornehmen Leuten grossere Shande, ais das zu Fuss gehen, und sogar Fremde, die besser denken, mussen sich gefallen lassen, auf 20 Schritt weit sich eines Wagens zu bedienen, wollen sie immer in Gesellschaften aufgenommen, und nicht verachtlich angesehen werden." ibid I, 29.
9. Sigerest, H. E.: On The History of Medicine, New York, 1961, 21.
10. Major, R. H.: A History of Medicine II, Oxford, 1954, 217.
11. Garrison, F. H.: An Introduction to the History of Medicine, Philadelphia, 1913, 251.
12. ". . . einer der bedeutendsten Arzte aller Zeiten sowie vor allem als Bergrunder der offenlichen Gesundheitspflege bezeichnet" Venzmer, G.: Funftausend Jahre Medizin, Bremen, 1968, 217.
13. Walker, M. E.: Pioneers of Public Health, New York, 1968, 46-47.

President's Pages



Blessed Be the Tie that Binds!

When I was a boy (as my kids say, "back in olden times") a group of us attended a demonstration put on by Charles Atlas to promote his muscle building course. Doubtlessly Charles Atlas was a very strong man but he was not above using a little help. One of the most dramatic acts of his show was the production of a New York telphone book and asking several people to attempt to tear it in half. Of course they all failed, but in the process the cover of the book lost its pristine condition and showed several folds and cracks. Then the great Atlas took over and held the telephone book in his hands above his head as he slowly turned in a semicircle to demonstrate the thick- of the book to the audience. Magicians will tell you that kids are the toughest audience to fool, and this was no exeception. My friends and I noted that as Atlas turned, he wrinkled the book vigorously in his hands adding to the cracking of the cover that had occurred previously. Then came the vivid moment of tearing the book, and sure enough Atlas did it quite easly. However, we noted that he gripped the book from the side rather than from the back binding and that the book was gripped at an angle so that the front cover was approximately 2 inches in front of the back cover. By holding the book in this manner he was in effect tearing only a few pages at a time instead of the full thickness of the book. After some practice at home, all of us were able to perform this act with a somewhat smaller Dallas telephone book.

I hope that the doctors of South Carolina are not to be divided and torn like the pages of Atlas' telephone book. This is time when we need to be united at a county, state and national level in order to assure the highest quality of medical care for our patients. However, the apathy of many doctors in South Carolina is disturbing. Over 2600 doctors are now licensed to practice in South Carolina; only 1500 of these have seen fit to join the South Carolina Medical Association— less than 60% . Despite the political havoc visited on the state medical profession from national and state levels, only 30% of the members of the South Carolina Medical Association chose to join SOCPAC to try to get state and national representatives of both parties to at least listen to our viewpoints. I won't bother to go into details about the benefits of joining the South Carolina Medical Association. Ed Kimbrough already has done an admirable job of this on pages 169 and 170 of the Mal, 1974, issue of the Journal.

Let us examine some of the reasons expressed for not joining the South Carolina Medical Association. First of all there is some lingering resentment about the move to Columbia and the construction of a new permanent home. All of us probably feel uncomfortable about changing established ways. However, very few people can argue against

that fact that the Legislature, the Governor, and various state agencies which have exerted such considerable influence over the practice of medicine in the last few years are situated in Columbia; and communication and action are much easier here from a headquarters in Columbia than one situated in Florence, Charleston, Greenville, or elsewhere. As for the home itself despite all the discussion about its size, I will predict that within 5 years after our occupation of this building we will be wondering whether we built a large enough building as we begin providng all the services which a state medical association should provide for its members.

Another source of dissatisfaction are the increased dues needed to run our medical organization. All of us are aware of what inflation has done in the past three years, and the expenses of a medical organization are not exempt from this inflationary effect. However, it constitutes a real problem for a young physician just starting to practice to pay the dues that are asked of him. In Greenville, the county medical society dues are $100 per year. The South Carolina Medical Association dues are $120, the AMA $110, the AMA-ERF voluntary contribution $10, and SOCPAC voluntary dues $20. This adds up to a grand total of $360 per year. This sounds like a considerable sum of money, and it is. However, my old friend, Ernest Lathem, recently investigated the cost of union dues. These dues are set at approximately 2 hours gross pay per month. Using Greenville County as an example, a physician's dues a month, or on the union basis, it would indicate a gross hourly income of $15 per hour. Except for interns and residents, I would feel safe in saying that the income of most physicians practicing in South Carolina would exceed this gross hourly rate. At a time when medicine needs support from both an individual and organized standpoint, can we doctors truly say that we cannot afford the dues a truckdriver, plumber, carpenter, or textile worker pays gladly to get the representative strength and political clout he knows are necessary to protect his job?

Where are these new members to be found? Apart from a minority of apathetic private practioners, I believe there are two major sources for new members. First of all, there are physicians who are not engaged in private practice. These include those who work for the state and federal government, full-time industrial and insurance company phisicans, many of the faculty of Medical University of South Carolina, and members of the Armed Forces. There have been many comments about why bother with these ivory tower doctors? The answer is simple. The South Carolina Medical Association should represent all physicians in South Carolina. Many of these doctors have problems which are more difficult to solve that those in private practice. They need our help, and we need their advice and support in order to be a truly representative organization. Another group we need to consider are the interns and residents and physicians just starting into practice. As mentioned, dues are often a problem; and it may well be that our bylaws need to be revised to take some of the financial strain off of these men during their first two years of practice. Again the question of being a representative organization is important. The viewpoints spread across 50 years of practice will naturally vary. The wisdom and ideas accumulated from many years of experience in practice need to be blended with newer ideas and enthusiasm of the younger physicians to produce action that will benefit all and again make us a truly representative group.

Because of the importance of membership, I have appointed Dr. Jefferys Macfie as Chairman of the newly formed Membership committee. This committee will consist of members from each of the nine medical districts. In turn, each of these members will recruit county chairmen to work on this problem of membership. Hopefully, the South Carolina Medical Association should have at least 2000 members. Once we pass this fig-

ure our influence in the AMA automatically increases 50%, because we get a new delegate. Let us stand together and give the people of South Carolina the finest possible medical care from an organization that represents doctors of all ages, viewpoints, and types of practice. Otherwise we are liable to be torn apart, group by group, one by one, like the pages of Charles Atlas' telephone book!

Donald G. Kilgore, Jr., M.D., President
South Carolina Medical Association

The Journal of the South Carolina Medical Association

50 YEARS AGO

September, 1924

The broad subject of urology was discussed by Dr. Marion H. Wyman of Columbia. His paper was discussed by Dr. Robert Wilson, Jr., Dr. George Bunch and Dr. F. D. Rogers.

Editorials

The Double Standard
or
It's Not as Much the Iron as the Irony

Most of us recall the days of the "Double Standard," when the man who could "score" almost every weekend was the pride of the frat house & BMOC, while the coed who could be "hit" on almost every date might have been in great demand but shamed her sorority sisters and was never taken home to introduce to mother. Also, the weekender or conventioner who made a few "hits" was simply demonstrating "machismo," while the wife who even once succumbed to temptation was permanently branded with the scarlet "A." Well, Women's Lib and the Sexual Revolution have just about done away with this double standard, but another double standard has arisen to take its place.

This is the double standard by which the FDA judges drugs, the prescription of which is always optional to the physician, and, on the other hand, judges food additives, in this instance iron, which must be added to all wheat flour, farina, bread, buns, and rolls—no option—all who partake get the added iron whether they want it or not. Now, on the surface this may seem like a very satisfactory way of eliminating iron deficiency anemia—the stated aim of the project—just like the addition of iodine to salt, vitamin D to milk, and niacin to bread have effectively reduced goiter, rickets, and pellegra on the American scene.

However, there are several differences between these diseases and their prevention and the iron controversy. Some powerful voices have questioned the wisdom of the blanket order by FDA to increase the iron content in all flour products. Chief among these are M. M. Wintrobe, world famous hematologist,[1] and Bill Crosby, editor of J.A.M.A.[2] Both question the adequacy of the studies indicating the presence of iron deficiency anemia in the U.S. The basis of the decision to add iron to flour was the Ten State Nutritional Survey performed 6 years ago. In women, any hemoglobin value that fell below the normal value (not outside the normal range) was scored as iron deficiency anemia. This suggests manipulation of data. Crosby and Wintrobe point out that there are many other causes of anemia besides iron deficiency and that in some of these other anemias, like sickle cell anemia and thalassemia, additional iron might harm the patient.

Another area of concern is the metabolism of iron, which is not simply an in and out situation as with iodine, fluoride, and vitamins. Iron is not absorbed efficiently, so the addition to bread may not even have any effect on iron deficiency. But, much more ominous once iron is absorbed is that very little is lost under normal circumstances. Menstruating women and growing children could benefit from more iron. But most of us probably can not. And there are potential dangers. Wintrobe and Crosby discuss the important hereditary diseases characterized by increased blood destruction and deposition of iron in the tissues, such as sickle cell anemia, other less common hemoglobinopathies characterized by iron overloading, and finally those not anemic but burdened with too much iron—hemachromatosis. Wintrobe also points out that iron deficiency is an important diagnostic finding to the alert clinician, often being the only early

sign pointing to bleeding, such as from a peptic ulcer or a carcinoma of the colon—an important clinical sign which would be obscured if excessive amounts of iron were absorbed.

Now, Charlie Still has added another important consideration to this controversy in his paper, "Blood, Bread, Iron, and the Aging Brain," in this issue of JSCMA. Here he points out the possible association of excessive iron and Parkinson's disease.

Still (no pun) the FDA moves relentlessly forward with its plan to force iron into our GI tracts whether we will absorb it or not and whether it will harm us or not. This world gets "curiouser and curiouser."

1. Wintrobe, M. M.: The proposed increase in iron fortification of wheat products, Nutrition Today, Nov./Dec., 1973, p. 18.
2. Crosby, W. H.: Bureaucratic clout, and a parable, JAMA 228:1651, 1974.

EEK

"Ask Not What Your Association Can Do for You, but What You Can Do for Your Association"

Since you are not going to ask what your Association is doing for you, It is up to us to let you know. So we shall tell you about one thing your Association is doing—one thing that will very directly affect your pocketbook—and your charges to your patients!

For many years SCMA has endorsed to its members The St. Paul Insurance Co. as carriers of malpractice insurance. Recently, St. Paul Insurance Company took several actions which appear to us as outrageous:

1) They plan to increase their rates 72% for malpractice insurance;

2) They refuse to recognize our insurance consultants, Johnson & Higgins of Georgia, as Brokers of Record for SCMA;

3) They refuse to reveal to us the amount of their reserve fund, which is customarily invested to yield return to the insurance company, and do not allow physician policy holders any participation in the profit from this reserve fund;

4) They intended to ask S. C. Insurance Commission for the rate increase implying approval of the rate increase by the SCMA.

At least these apparently would have been done by St. Paul Company except for timely action by William Fairey, Chairman of SCMA's Professional Liability Committee, and extended negotiations by the Executive Committe of SCMA Council.

The Executive Committee spent many hours debating with St. Paul Company the rectitude of a 72% rate increase and the circumstances of their relationship with SCMA. Without this, perhaps the 72% increase would be in effect right now. But thanks to diligence and persistence by the leadership of SCMA, the exhorbitant increase (72%) must be justified and perhaps can be negotiated to a more realistic level and perhaps save *you* hundreds of dollars per year. It's "little" things like this that add up to the great service that SCMA provides to its members.

Thank you, SCMA!!

EEK

Big Blue, How Do You Do!

Perhaps you noticed something different about this issue of JSCMA. If not, look at the cover again. Instead of the traditional red, it is now blue. There is a specific reason for this change. If we receive ten or more inquiries about the reason for the change, we will reveal it. If we receive five hundred and fifty-three or more objections to the change, we will revert to red (maybe!).

EEK

An Opportunity—To Win Five Hundred Dollars

Sadly, most editorials in this Journal are dolorous due to the nature of Medicine in the USA in the last half of the 20th century. But this is a happy editorial, thanks to the Council of SCMA, the Pfizer Co. and A. H. Robins Co. Let us elucidate.

SCMA now has an obsolete, unattractive symbol. By direction of Council and underwritten by Pfizer and Robins, a contest is hereby inaugurated for a NEW SYMBOL FOR SCMA. Everybody is encouraged to enter — amateurs and professionals, SCMA members and Auxiliary members, physicians and laymen—all are invited to submit designs for a new symbol of SCMA. Let the design reflect your ideas of SCMA—there are no limitations.

A blue ribbon committee has been appointed, chaired by Don Saunders, with Calvin Smith of Greenville, H. R. Pratt-Thomas of Charleston, and Bill Ledyard of Columbia as members. This committee will select the three best designs submitted. In April of 1975, SCMA Council will select the final winner, to be announced at the 1975 Annual SCMA Meeting. A prize of $500 will be awarded the winner at the 1975 meeting. This prize was generously underwritten by Pfizer and Robins, whose contribution should be recognized by all members of SCMA.

Designs will be received by the Chairman, Public Relations Committee of SCMA. They will be identified by number only and forwarded to the special elite Selection Committee, which will select the best three.

Submit all entries to:

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EEK

LETTER TO THE EDITOR

Sir:

We have read with interest the article concerning the Department of Surgery of the Medical University of South Carolina in the June 1974 issue of the Journal of the South Carolina Medical Association. There is one statement by the authors which we feel cannot go unchallenged, however. The statement is as follows: "Following Dr. Kredel's death in 1962, the Department faltered but soon resumed its upward development under Dr. George Clowes."

The statement is an opinion of the authors to which they are entitled. It is, however, only an opinion and one which cannot be supported by firsthand knowledge provided by the presence of any of the authors in the Department of Surgery during the period in question or for several years afterward. The undersigned were present before, during, and subsequent to the time in question. It is our opinion based on firsthand knowledge that the Department of Surgery faltered in no way. To be sure, the absence of Dr. Kredel was keenly felt by all members of the Department. However, excellent leadership was maintained and the functions of the Department in patient care and training of surgical residents and students were performed in a conscientious and highly successful manner by all the fulltime and Clinical Staff of the Department of Surgery. Also, for the record, it should be noted that Dr. Kredel actually died in October 1961.

Edward F. Parker, M. D.
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B. E. Ferrara, M. D.
Morey Lipton, M. D.
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Henry Donato, M. D.
J. T. Richards, M. D.
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J. M. Stallworth, M. D.
L. B. Jenkins, M. D.
Harry Gregorie, M. D.

MEDICAL UNIVERSITY OF SOUTH CAROLINA
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OF THE COLLEGE OF MEDICINE

October 3-4	Urology — Dr. William H. Boyce, Jr. of Bowman Gray School of Medicine, guest speaker.
October 7-8	Family Practice — Dr. Patrick S. Byrne of the University of Manchester, Great Britain, guest speaker.
October 10-11	Microbiology — Dr. Byron H. Waksman of Yale University, guest speaker.
October 14-15	Radiology — Dr. Martin W. Donner of Johns Hopkins University, guest speaker.
October 17-18	Psychiatry and Behavioral Sciences — Dr. Roy R. Grinker, Sr. of the Michael Reese Hospital and Medical Center in Chicago and Dr. Julius Axelrod of the National Institute of Mental Health, guest speakers.
October 31-November 1	Neurosurgery — Dr. Joseph Jules Hardy of the University of Montreal, Canada, guest speaker.

Please notify the appropriate department if you expect to attend. Medical University of South Carolina, 80 Barre St., Charleston 29401. No registration fees are required.

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CONTINUING EDUCATION

14TH ANNUAL CHARLOTTE POSTGRADUATE SEMINAR Oct 2-3, 1974. New location: Memorial Hospital Auditorium, Charlotte NC. Special afternoon session Oct 2 for physicians and wives, "Transactional Analysis, Concepts, and Sex," evening session, "Sex is Not a Four Letter Word," presented by Dr. Gordon Deckert, Dept of Psychiatry, U of Oklahoma Med Sch. Other topics: Leukemia, Myocardial Infarction, EKGS, Contraception, Respiratory Emergencies. 15 hours AAGP credit No registration fee Reservations: Mrs. Farrior Harloe, 1336 Brockton La, Charlotte NC 28211

RED ALERT is the title of a two-day Regional Institute on Trauma to be held Nov 1-2, 1974, at Mills-Hyatt House, Charleston SC The Assoc of Operating Room Nurses, Charleston Chapter I is presenting the Institute which is sponsored by AORN National Committee on Education Topics include: Massive Burn, OR Nursing, Air Bed Care, Trauma Evaluation, EMS Program. Contact: Registration Chairman, Donna O'Rourke RN, 1334 Hampshire Rd, Charleston SC 29412

CALL FOR PAPERS

INTERNATIONAL BIOMATERIALS SYMPOSIUM and First Meeting of Society of Biomaterials at Clemson Univ, April 26-30, 1975 Sessions: Cranio-Facial Materials, Oral-Dental Materials, Recent Advances in Research & Applications, Cardiovascular Materials, Orthopedic Materials. Abstracts must be submitted by Oct 1, 1974 For details: Francis W. Cooke, Div of Interdisciplinary Studies, 301 Rhodes Bldg, Clemson Univ, Clemson SC 29631.

PSRO in South Carolina

The S. C. Medical Care Foundation has been steadily increasing its scope of activity and has made substantial progress on its required functions as a Planning PSRO. Mr. William Mahon has assumed full time program responsibility as PSRO Project Director, and is now coordinating the entire planning effort.

In recent weeks, working relationships have been established between the PSRO and Medicare and Medicaid agencies, and the Maternal and Child Health agency. The PSRO will be responsible for monitoring patient care funded under all three programs.

The Foundation is also surveying hospitals across the state, attempting to learn as much as possible about the utilization review and quality assessment programs which many hospitals are performing on an internal basis. The Foundation's attempt to learn about these programs has involved the distribution of survey forms to each acute hospital in the state. The response to date has been excellent, but we want to learn about current programs in each facility, and urges each hospital to provide information about any of its internal utilization or quality activities.

The Foundation is also trying to increase its membership to represent as large a percentage of the physicians in South Carolina as possible, and will be offering each physician the opportunity to become a member of the Foundation and to participate in Foundation activities.

Any questions concerning the Foundation and its PSRO program may be directed to Mr. Mahon in Columbia at 252-6315, or to any member of the Board of Directors. The Directors of the Foundation are: Kenneth N. Owens, M.D., Aiken (President); Halsted M. Stone, M.D., Chester (Vice President); Randolph D. Smoak, Jr., M.D., Orangeburg (Secretary); James E. Bleckley, M.D., Anderson; Euta M. Colvin, M.D., Spartanburg; John D. Gilland, M.D., Conway; Michael Holmes, M.D., Kingstree; J. Hal Jameson, M.D., Easley; William A. Klauber, M.D., Greenwood; Thomas W. Messervy, M.D., Summerville; and Waitus O. Tanner, M.D., Columbia.

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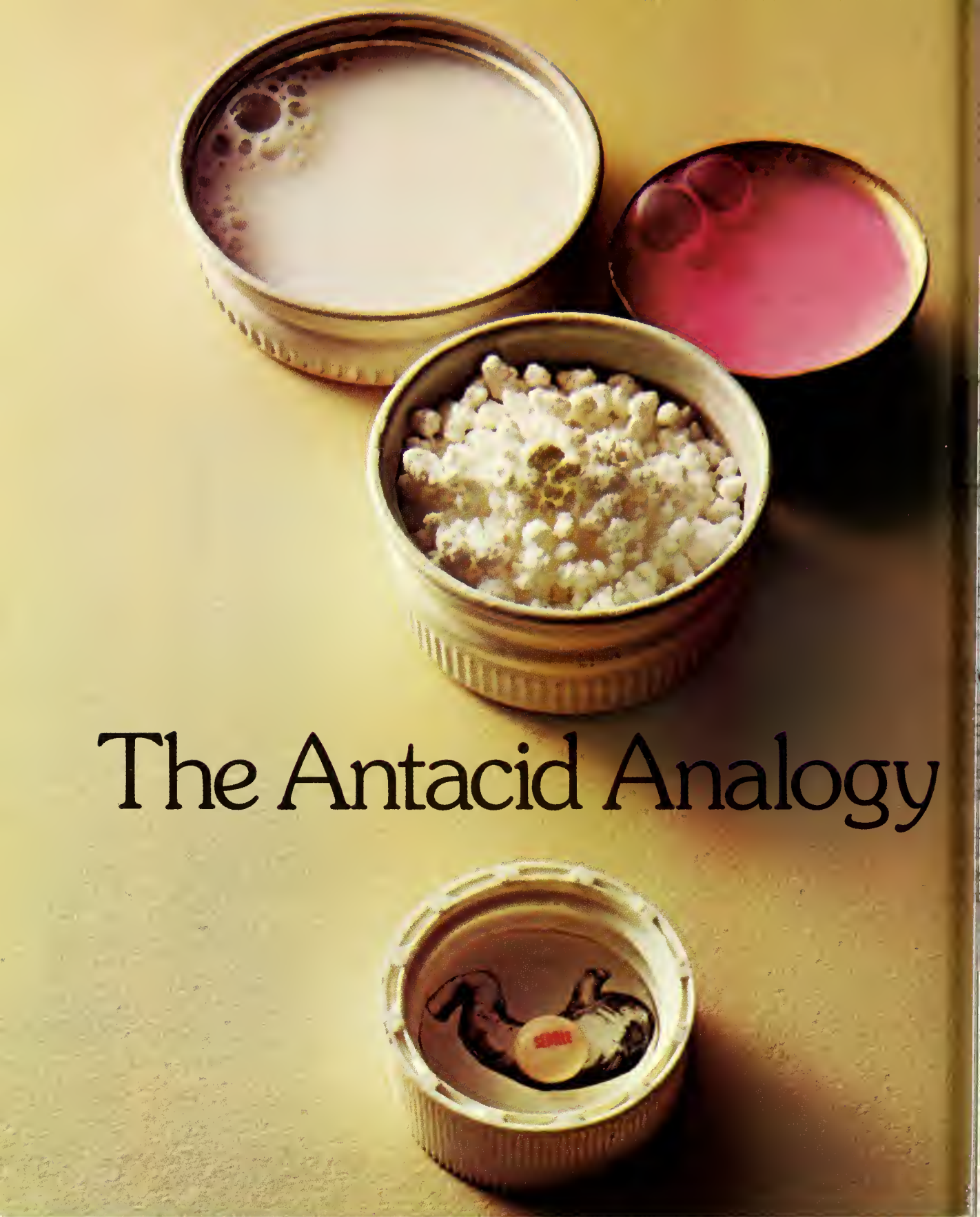


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Indications: Pro-Banthine is effective as adjunctive therapy in the treatment of peptic ulcer. Dosage must be adjusted to the individual.

Contraindications: Glaucoma, obstructive disease of the gastrointestinal tract, obstructive uropathy, intestinal atony, toxic megacolon, hiatal hernia associated with reflux esophagitis, or unstable cardiovascular adjustment in acute hemorrhage.

Warnings: Patients with severe cardiac disease should be given this medication with caution.

Fever and possibly heat stroke may occur due to anhidrosis.

In theory a curare-like action may occur, with loss of voluntary muscle control. For such patients prompt and continuing artificial respiration should be applied until the drug effect has been exhausted.

Diarrhea in an ileostomy patient may indicate obstruction, and this possibility should be considered before administering Pro-Banthine.

Precautions: Since varying degrees of urinary hesitancy may be evidenced by elderly males with prostatic hypertrophy, such patients should be advised to micturate at the time of taking the medication.

Overdosage should be avoided in patients severely ill with ulcerative colitis.

Adverse Reactions: Varying degrees of drying of salivary secretions may

Therapeutic comparisons in peptic ulcer.

Antacids have only one mode of action to relieve ulcer pain...

Pro-Banthine® has four.

...and of propantheline bromide

Antacids:

Antacids relieve ulcer pain by neutralizing gastric acid. This action is relatively short-lived and they have no other mode of action.

Pro-Banthine:

Pro-Banthine suppresses gastric acid secretion. The antisecretory properties of Pro-Banthine are well established. By effectively blocking vagotonic impulses Pro-Banthine suppresses gastric secretion to reduce both total and free acid.

Pro-Banthine helps relieve pain. Pro-Banthine relieves ulcer pain by reducing gastric secretion and the motility and spasm of the gastrointestinal tract.

Pro-Banthine reduces acidity without subsequent acid rebound. The capacity of Pro-Banthine to reduce the secretion of total and free acid in the stomach has been demonstrated in scores of studies. None has demonstrated any significant evidence of acid rebound.

Pro-Banthine activity lasts about six hours. The effect of a single therapeutic dose (15 mg.) of Pro-Banthine lasts about six hours.* Pro-Banthine P.A.®, the prolonged-acting form, is active from 8 to 12 hours. Thus Pro-Banthine may be used to suppress acid, spasm, and pain around the clock, even during the sleeping hours when antacids, to be effective, must be taken almost hourly.

*Innes, I. R., and Nickerson, M., in Goodman, L. S., and Gilman, A. (editors): The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970, p. 537.

Pro-Banthine complements and enhances the action of antacids.

SEARLE **Searle & Co.**
San Juan, Puerto Rico 00936

Address medical inquiries to: G. D. Searle & Co.
Medical Department, Box 5110, Chicago, Ill. 60680

...as well as mydriasis and blurred vision. In addition the following adverse reactions have been reported: nervousness, drowsiness, dizziness, insomnia, headache, loss of the sense of taste, nausea, vomiting, constipation, impotence and allergic dermatitis.

Dosage and Administration: The recommended daily dosage for adult oral therapy is one 15-mg. tablet with meals and two at bedtime. Subsequent adjustment to the patient's requirements and tolerance must be made.

Pro-Banthine P.A.—Each tablet of Pro-Banthine P.A. (propantheline bromide) contains 30 mg. of the drug in the form of sustained-release or timed-release beads; on ingestion about half of the drug is released within an hour and the remainder continuously as earlier increments are metabolized. Thus the result is even, high-level anticholinergic activity maintained all day and all night in most patients with only two tablets daily. Some patients may require one tablet every eight hours.

The contraindications and precautions applicable to Pro-Banthine 15 mg. should be observed.

How Supplied: Pro-Banthine is supplied as tablets of 15 and 7.5 mg., as prolonged-acting tablets of 30 mg. and, for parenteral use, as serum-type vials of 30 mg.

The Role of the Detail Man

Opinion & Dialogue

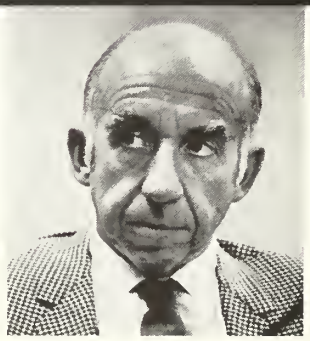


Dr. Willard Gobbell
Family Physician
Encino, California

"I may be prejudiced, but I am very much in favor of the detail men I meet. Most of them are knowledgeable about the drugs they promote and can be a great help in acquainting me with new medication."

Family Physician's Perception

I think that most general practitioners in this area feel as I do about the detail man. Over the years I have gotten to know most of the men who visit me regularly and they in turn have become aware of my particular interests and the nature of my practice. They, therefore, limit their discussion as much as possible to the areas of interest to me. Since I usually see the same representative again in future visits, it is in his best interest to supply me with the most honest, factual, as well as up-to-date information about his products.



Dr. Jeremiah Stamler
Chairman
Department of Community Health and Preventive Medicine, and Dingman Professor of Cardiology
Northwestern University Medical School

"In the total picture of dealing with health problems in this country, there is a potential for detail men to play a meaningful role."

The Positive Influence

My contact with representatives and salesmen of the pharmaceutical industry is the type of contact that people in a medical center, research people, and academic people have and that's in all likelihood on a somewhat different level from that of the practicing physician.

Let me touch on how I personally perceive the role of the sales representative. These men reach large numbers of health professionals. Thus they could be—and at times actually are—disseminators of useful information. They could consistently serve a real educational function in their ability to discuss their products.

At present they do distribute printed material, brochures and pamphlets—some of it scientifically sound and therefore truly useful—as well as some excellent films produced by the pharmaceutical industry. When they function in this

He a Source of Information?

Yes, with certain reservations. e average sales representative s a great fund of information out the drug products he is re- nsible for. He is usually able to swer most questions fully and lligently. He can also supply rints of articles that contain a at deal of information. Here, , I exercise some caution. I usu- accept most of the statements l opinions that I find in the ers and studies which come m the larger teaching facilities. es without saying that a physi- n should also rely on other rces for his information on rmacology.

ining of Sales Representatives

Ideally, a candidate for the ition as a sales representative pharmaceutical company uld be a graduate pharmacist has a questioning mind. I don't k this is possible in every case, so it becomes the responsibility of the pharmaceutical company to train these individuals comprehensively. It is of very great importance that the detail man's knowledge of the product he represents be constantly reviewed as well as updated. This phase of the sales representative's education should be a major responsibility of the medical department of the pharmaceutical company.

I am certain that most of these companies take special care to give their detail men a great deal of information about the products they produce—information about indications, contraindications, side effects and precautions. Yet, although most of the detail men are well informed, some, unfortunately, are not. It might be helpful if sales representatives were reassessed every few years to determine whether or not they are able to fulfill their important function. Incidentally, I feel the same way about periodic assessments of everyone in the health care field, whether they be general practitioners, surgeons or salesmen.

Value of Sampling

I personally am in favor of limited sampling. I do not use sampling in order to perform clinical testing of a drug. I feel that drug testing should rightly be left to the pharmacology researcher and to the large teaching institutions where such testing can be done in a controlled environment.

I do not use samples as a "starter dose" for my patients. I do, however, find samples of drugs to be of value in that they permit me to see what the particular medication looks like. I get to see the various forms of the particular medication at first hand, and if it is in a liquid form I take the time to taste it. In that way I am able to give my patients more complete information about the particular medications that I prescribe for them.

---

acity they are indeed useful; ticularly in the fact that they eminate broadly based educa- al material and serve not just pushers" of their drugs.

Other Side of the Coin

Obviously, the pharmaceuti- companies are not producing all material as a labor of love— are in the business of selling ducts for profit. In this regard ambitious and improperly moti- d sales representative can t a negative influence on the ticing physician, both by pre- ing a one-sided picture of his duct, and by encouraging the titioner to depend too heavily rugs for his total therapy. In e ways, the salesman has often orted objective reality and ermined his potential role as an cator.

Industry Responsibility

Since the detail man must be nformation resource as well as presentative of his particular rmaceutical company, he uld be carefully selected and thoroughly trained. That training, perforce, must be an ongoing one. There must be a continuing battle within and with the pharmaceutical industry for high quality not only in the selection and training of its sales representatives, but also in the development of all of its promotional and educational material.

The industry must be ready to accept constructive as well as corrective criticism from experts in the field and consumer spokesmen, and be willing to accept independent peer review. The better educated and prepared the salesman is, the more medically accurate his materials, the better off the pharmaceutical industry, health professionals and the public—*i.e.*, the patients—will be.

Physician Responsibility

The practicing physician is in constant need of up-dated information on therapeutics, including drugs. He should and does make use of drug information and answers to specific questions supplied by the pharmaceutical representative. However, that information must not be his main source of continuing education. The practitioner must keep up with what is current by making use of scientific journals, refresher courses, and information received at scientific meetings.

The practicing physician not only has the right, but has the responsibility to demand that the pharmaceutical company and its representatives supply a high level of valid and useful information. I feel certain that if such a high level is demanded by the physician as well as the public, this demand will be met by an alert and concerned pharmaceutical industry.

From my experience, my impression is that sectors of the pharmaceutical industry are indeed ethical. I challenge the industry as a whole to live up to that word in its finest sense.

Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W.
Washington, D.C. 20005



BOOK REVIEW

SESQUICENTENNIAL 1824-1974 COLLEGE OF MEDICINE, MEDICAL UNIVERSITY OF SOUTH CAROLINA, Commemorative Volume, by Joseph I. Waring, M.D. Sesquicentennial Committee, Charleston, S. C. 1974. Illus. Pp. 108. Price $5.00.

First, I think that Dr. Joseph Waring and his co-writers should be complimented for their excellent volume commemorating the sesquicentennial of the Medical University of South Carolina. The writing is of the usual and expected professional quality of Dr. Waring, but equally pleasing is the high quality of the writing by the other authors in this volume. The volume contains some fine old portraits and pictures, some of them quite rare, and by themselves worth the price of the book.

I find it difficult to review this book without considering a somewhat collateral write-up of the Medical University of South Carolina in the Journal of the South Carolina Medical Association for June of this year. In a way, I suppose, they compliment each other, although the book achieves a cohesiveness and the continuity that is lacking in the magazine. Unfortunately the articles in the magazine would seem better suited for a medical school catalog or brochure for a chamber of commerce.

It is interesting to find that the same problems that concerned the school in the beginning still haunt that school's administration—money. In those pre-founding years of 1821 to 1823, you felt that the will and determination of the founding fathers could, somehow, overcome the puny difficulty of obtaining the needed money. There was a naivete and innocence in their need and the method of their securing the needed funds as compared with the very complex problems of funding the modern medical school with the current need of economic prostitution toward the Federal government.

I think that this book does an excellent job of delineating the changes in the philosophy in medical education and practice during the past one hundred and fifty years . . . . some would call it progress. These years have seen the practice of medicine change from an art to a science. I entered the then Medical College of the State of South Carolina forty years ago . . . . almost a third of the lifetime of the school—and I was there when the school began bursting out of its cocoon of neopotism and provincialism. I was there when the first full time teachers were hired for the clinical years. We were becoming "scientific" but who can forget the men who taught there for so many years without pay or fame? Who can forget their first real clinical experience? The pre-clinical years were just an extension of college but when we first examined a patient with someone like Dr. Rutledge in his physical diagnosis course, we felt like doctors, and there were no better men to emulate than the Doctors Rutledge, Wilson, Johnson, Lynch, Bowers, Wilson—and the rest. These men were DOCTORS. We were fortunate in having such men to hero-worship and what we missed in the science of medicine, we made up in our compassion and feel for the practice of medicine. We were the innocent ones; we believed in the Hippocratic Oath. We believed that people got sick and not that people were simply vehicles for the carrying of an illness.

Perhaps what I have said is a little too strong, but most of it is there in the careful reading of this sesquicentennial volume. I am sure that the modern medical school teaches the "art of medicine" in a proper scientific way and that the modern doctor saves more lives in a cold and efficient fashion than his older colleagues, but with a great deal less personal satisfaction.

The old doctors that crowd the pages of this volume were medical pioneers of an order not often found and deserve our fullest admiration. You should read about them and perhaps gain inspiration that will lighten the oppressive burden of your practice of medicine in these times.

Buford S. Chappell, M. D.

SYMPOSIUM

"Incompatibility of Medications"

Continuing Education Symposium sponsored by Continuing Education Section,
William S. Hall Psychiatric Institute, Columbia, South Carolina.

Tuesday, October 15, 1974 ——— 9:00 A.M. - 4:30 P.M.

At: William S. Hall Psychiatric Institute Columbia, South Carolina

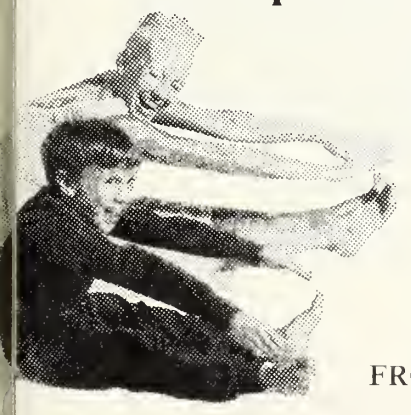
Panel: Frank J. Ayd, Jr., M.D., Baltimore, Maryland
Leo E. Hollister, M.D., Palo Alto, California
Leonard P. Caccamo, M.D., Youngstown, Ohio

6 Credit hours have been requested. No Registration Fee

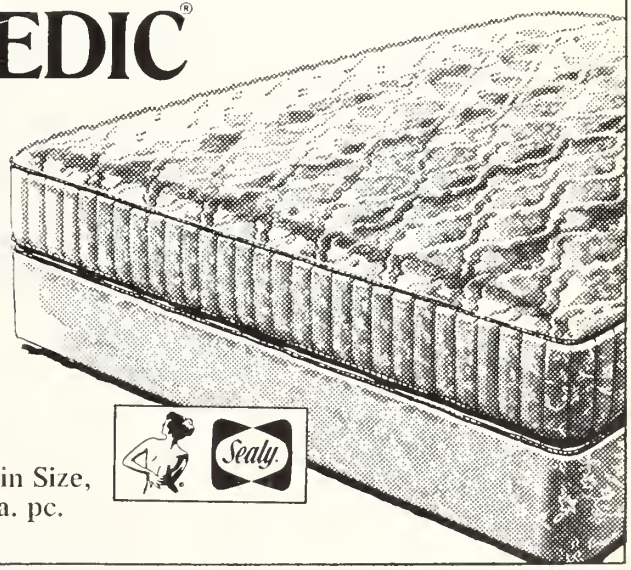
"WHEN YOUR BACK FEELS GOOD YOU'LL FEEL GOOD"

SEALY POSTUREPEDIC®

A Unique Back Support System



Designed in cooperation with leading orthopedic surgeons for comfortably firm support—"no morning backache from sleeping on a too-soft mattress."



FROM $109.95 Twin Size, ea. pc.

SEALY OF THE CAROLINAS, INC.
(a division of the 72-year old Peerless Mattress Co.)

ASHEVILLE, N. C.
CHARLOTTE, N. C.
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GREENVILLE, N. C.
COLUMBIA, S. C.

"sleeping on Sealy is like sleeping on a cloud"

American Medical Association's Guidelines on Bank Cards

In connection with physician participation in bank card programs, the following principles are recommended to be implemented and applied as necessary by the county medical society for the guidance of physicians as these programs develop.

1) The County medical society should be satisfied as to the financial and professional integrity of the plan. It should negotiate with the plan sponsors to insure that service charges to the physician are reasonable. It should insist that the plan be open to all physicians on the same terms and that it not exploit or capitalize on physicians' participation in the plan. It should advise the plan that the listing of physicians in directories of participating members is contrary to the ethics of the medical profession.

2) The individual physician may not, because of his participation, increase his fee for medical service rendered the patient. He may not use the plan to solicit patients. He may not encourage patients to use the plan. His position must be that he accepts the plan as a convenience to patients who desire to use it. Plaques or other devices indicating participation in the plan within the physician's office shall be kept to a discreet and dignified minimum. Plaques, signs, or other devices indicating such participation visible outside the physician's office are unacceptable.

3) The use of a bank card in connection with the payment of larger fees—which might normally be paid to the physician in installments—is not to be encouraged. All members of the Association are expected to continue the traditional practice of permitting patients of limited means to pay relatively large fees in installments without interest or carrying charges. Out of respect for the dignity and traditions of the medical profession, the physician may not relieve himself of his obligations "to render service to humanity, reward or financial gain being a subordinate consideration."

Rondomycin
(methacycline HCl)

CONTRAINDICATIONS. Hypersensitivity to any of the tetracyclines

WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**

Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)

Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.

Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)

All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.

Tetracyclines are present in milk of lactating women taking tetracyclines.

To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.

Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.

PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.

In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.

Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.

In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).

Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.

Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.

ADVERSE REACTIONS: Gastrointestinal (oral and parenteral forms), anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.

Skin: maculopapular and erythematous rashes, exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).

Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).

Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.

Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.

Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.

Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur.

USUAL DOSAGE: Adults—600 mg daily, divided into two or four equally spaced doses. More severe infections, an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, 'Rondomycin' (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.

For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.

Eaton Agent pneumonia: 900 mg daily for six days.

Children—3 to 6 mg/lb/day divided into two to four equally spaced doses.

Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.

Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.

In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.

In streptococcal infections, a therapeutic dose should be given for at least 10 days.

SUPPLIED: 'Rondomycin' (methacycline HCl) 150 mg and 300 mg capsules; syrup containing 75 mg/5 cc methacycline HCl.

Before prescribing, consult package circular or latest PDR information.

Rev. 6/73

WALLACE LABORATORIES
CRANBURY, NEW JERSEY 08512



When the focus is on bronchitis due to susceptible strains of *H. influenzae* and pneumococci*

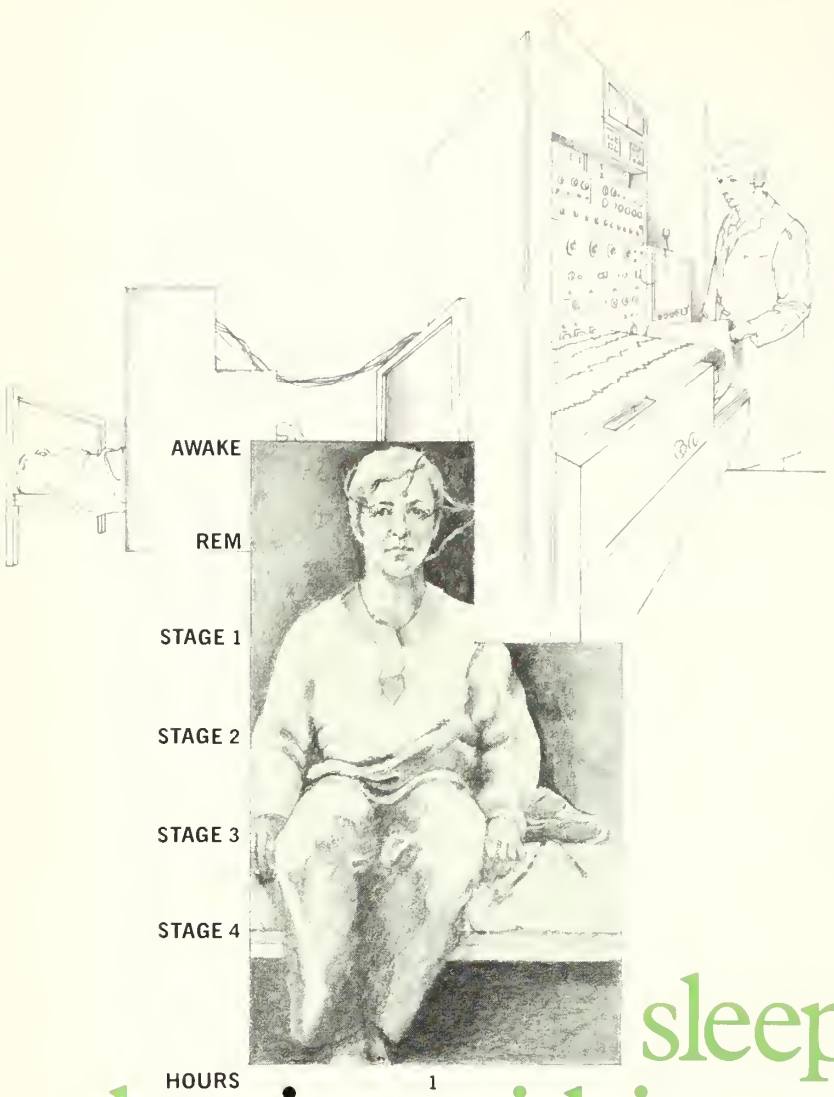
Rondomycin® 300 mg. Capsules

[methacycline HCl]

Delivers from the very first dose:

Studies show that after the first dose serum levels rapidly rise above minimum *in vitro* inhibitory concentrations

*Since many strains are known to be resistant, routine sensitivity testing is recommended.



sleep begins within 17 minutes, on average ...

an initial benefit of

Dalmane®

(flurazepam HCl)

proved by a 22-night clinical study of insomnia patients in the sleep research laboratory and at home[1]

Three insomnia patients selected for difficulty falling asleep were administered Dalmane (flurazepam HCl) 30 mg for 14 consecutive nights. Placebo was given for four nights prior to and four nights after Dalmane. Physiologic tracings on Dalmane nights 1-3 showed sleep induction time averaged 13.90 minutes; on Dalmane nights 12-14, 18.80 minutes. Combined average for the 6 monitored drug nights was 16.35 minutes.[1]



confirmed by clinical studies in four geographically separated sleep research laboratories[2-5]

Using a 14-night protocol involving eight insomniac and eight normal subjects, four studies confirmed the sleep-inducing effectiveness of Dalmane (flurazepam HCl) and the reproducibility of this response. On average, one 30-mg capsule induced sleep within 17 minutes. In all these studies, Dalmane induced sleep rapidly, reduced nighttime awakenings, and provided 7 to 8 hours of sleep without repeating dosage[2-5]

Dalmane (flurazepam HCl) induces and maintains sleep, with relative safety

lmane is generally well tolerated; morning "hang-over" has been relatively requent. While dizziness, drowsiness, lightheadedness and the like have en noted most often, particularly in the elderly and debilitated, physicians ould be aware of the possibility of more serious reactions, as noted below.

fore prescribing Dalmane (flurazepam HCl), please consult Complete Product Information, ummary of which follows:

dications: Effective in all types of insomnia characterized by difficulty in falling asleep, quent nocturnal awakenings and/or early morning awakening; in patients with recurring somnia or poor sleeping habits; and in acute or chronic medical situations requiring restful ep. Since insomnia is often transient and intermittent, prolonged administration is generally t necessary or recommended.

ntraindications: Known hypersensitivity to flurazepam HCl.

rnings: Caution patients about possible combined effects with alcohol and other CNS pressants. Caution against hazardous occupations requiring complete mental alertness g., operating machinery, driving). Use in women who are or may become pregnant only when tential benefits have been weighed against possible hazards. Not recommended for use in rsons under 15 years of age. Though physical and psychological dependence have not been ported on recommended doses, use caution in administering to diction-prone individuals or those who might increase dosage.

ecautions: In elderly and debilitated, initial dosage should be nited to 15 mg to preclude oversedation, dizziness and/or ataxia. combined with other drugs having hypnotic or CNS-depressant ects, consider potential additive effects. Employ usual precautions patients who are severely depressed, or with latent depression or icidal tendencies. Periodic blood counts and liver and kidney nction tests are advised during repeated therapy. Observe usual ecautions in presence of impaired renal or hepatic function.

lverse Reactions: Dizziness, drowsiness, lightheadedness, aggering, ataxia and falling have occurred, particularly in elderly debilitated patients. Severe sedation, lethargy, disorientation and ma, probably indicative of drug intolerance or overdosage, have en reported. Also reported were headache, heartburn, upset omach, nausea, vomiting, diarrhea, constipation, GI pain, nervous- ss, talkativeness, apprehension, irritability, weakness, palpitations, est pains, body and joint pains and GU complaints. There have so been rare occurrences of sweating, flushes, difficulty in focusing, urred vision, burning eyes, faintness, hypotension, shortness of eath, pruritus, skin rash, dry mouth, bitter taste, excessive saliva- on, anorexia, euphoria, depression, slurred speech, confusion, stlessness, hallucinations, and elevated SGOT, SGPT, total and rect bilirubins and alkaline phosphatase. Paradoxical reactions, g., excitement, stimulation and hyperactivity, have also been ported in rare instances.

osage: Individualize for maximum beneficial effect. *Adults:* 30 mg sual dosage; 15 mg may suffice in some patients. *Elderly or debil- ated patients:* 15 mg initially until response is determined.

pplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



when restful sleep is indicated

Dalmane®
(flurazepam HCl)

One 30-mg capsule *h.s.* — usual adult dosage (15 mg may suffice in some patients).
One 15-mg capsule *h.s.* — initial dosage for elderly or debilitated patients.

- induces sleep within 17 minutes, on average
- reduces nighttime awakenings
- sustains sleep 7 to 8 hours, on average, without repeating dosage

EFERENCES: 1. Kales A, *et al*: *Arch Gen Psychiatry 23*:226-232, Sep 1970
Karacan I, Williams RL, Smith JR: The sleep laboratory in the investigation of sleep and eep disturbances. Scientific exhibit at the 124th annual meeting of the American Psychiatric ssociation, Washington DC, May 3-7, 1971
Frost JD Jr: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ
Vogel GW: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ
Dement WC: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ

ROCHE

ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110



What does man have in common with Samson?

Neither man nor the gorilla can synthesize vitamin C. Interestingly, the slow loris, a primate much further down the evolutionary scale, can convert L-1,4-gulonolactone to ascorbic acid in its liver and presumably does not require an exogenous source of ascorbic acid.

Because man can neither synthesize vitamin C nor store most of the water soluble vitamins, these nutrients must be replenished continuously in order to maintain normal tissue levels.

Generally, this is accomplished in his daily diet. But under conditions of illness, stress, in convalescence or following surgery, vitamin stores may be depleted or metabolic demands increased.

In such cases, Surbex-T may be indicated. Surbex-T restores the water-soluble vitamins with each tablet providing 500 mg. of vitamin C plus high potency B-complex.

ABBOTT

SURBEX-T® 500 mg. of Vitamin C with High Potency B-Complex

Restores what the body cannot effectively store

403481

WOMAN'S AUXILIARY
TO THE
SOUTH CAROLINA MEDICAL ASSOCIATION

One of the goals of the Auxiliary this year is better communication. To the physicians; will you please take the S. C. Medical Journal home to your wife. The Journal will also be a way of informing Auxiliary members, Members-at-large, and prospective members.

For some time now I have felt that maybe the physician didn't really know of all the work the Auxiliary does. This will give you an insight of some of our goals.

The National and State theme this year is: "Reach for the stars." Carl Schurg once said, "Ideals are like stars; you will not succeed in touching them with your hands. But like the seafaring man on the desert of waters, you chose them as your guides, and following them you will reach your destiny." We are setting our sights high, reaching for the stars.

The first star we must reach for is *MEMBERSHIP*. Join us, we can do more together. Not only do we need the hands of all physicians' wives to assist our growing progress, but we need their hearts and their concern as well. Each of us must make it our business to recruit members on a one-to-one basis. So we dare reach for this star asking for an increase of 100 members?

The second star is *AMA-ERF*. This is the only fund raising project of the Auxiliary. This past year the Auxiliary gave to AMA-ERF with a $11.94 per capita. This year we will be reaching for $15.00 per capita. Through our efforts last year $12,341.91 was given to the Medical University of S. C. The members of the *Association* can help. This year when you make your contribution to AMA-ERF, would you like to earmark it to the Auxiliary Fund? It goes into the same fund as the AMA, but this way the S. C. Auxiliary will get credit on our national report. Each year an award is given the state auxiliaries contributing a certain percentage. Maybe you would also like to designate your check to the Medical University of S. C. This way your contribution will be returning to the state. All contributions are *tax deductable*. If you would like for the Auxiliary to handle this for you, just make checks payable to AMA-ERF Auxiliary Fund, designate where you want it to go, and Mail to Mrs. Andrew J. Whitaker, 6106 Crabtree Rd., Columbia, S. C. 29206.

Our next two stars are also big and bright: *Community Health* and *Family Health*. This year we will be taking our Child Protection program to the county level. This will be a follow-up to the S. C. Forum on Child Protection that the Association contributed to this past March. The Auxiliary will look to identify health problems of the communities, and then work to stimulate solution to these problems through public education and volunteer services.

International Health is another star within our reach. It is a caring program that transcends boundaries. Each year the Auxiliary does a tremendous job of making leper bandages, hospital coats from old shirts, and collecting sample drugs and medical equipment. These are packaged and sent to an approved agency for distribution overseas. Physicians, please begin to save sample drugs. You will be contacted for them sometimes

during the year. Medical supplies and surgical instruments are also needed.

Our *Legislation* committee serves two purposes— one, to keep members informed and up-to-date on legislative health issues facing organized medicine, and to involve them in working for good medical legislation. The Auxiliary has two representatives to the SOCPAC Board.

Health Careers will be working through our schools encouraging young people to go into allied health fields. The state Health Careers rally will be held in Charleston Oct. 31 - Nov. 1.

Our *Students Loan Fund* is very active and growing. This fund is available for children and grandchildren of physicians who are, or have been members of the S. C. Medical Association. The student must be attending The Medical University of S. C.

Benevolence is a star that dosen't shine as brightly, but is still there, waiting to be reached. Each year the county auxiliaries are encouraged to give to the Benevolence Fund. This fund is set up to aid widows or indigent families of physicians.

We have set our goals high, but these stars can be reached. We need the help of *every* physician's wife. Please, will each physician join the S. C. Medical Association, and encourage your wife to join us in the Auxiliary. *Together* we *can* reach our stars.

Billie Brady
President, WA-SCMA

PRESCRIBING INFORMATION
Antiminth (pyrantel pamoate) Oral Suspension
Actions. Antiminth (pyrantel pamoate) has demonstrated anthelmintic activity against *Enterobius vermicularis* (pinworm) and *Ascaris lumbricoides* (roundworm). The anthelmintic action is probably due to the neuromuscular blocking property of the drug.

Antiminth is partially absorbed after an oral dose. Plasma levels of unchanged drug are low. Peak levels (0.05-0.13μg/ml.) are reached in 1-3 hours. Quantities greater than 50% of administered drug are excreted in feces as the unchanged form, whereas only 7% or less of the dose is found in urine as the unchanged form of the drug and its metabolites.

Indications. For the treatment of ascariasis (roundworm infection) and enterobiasis (pinworm infection).

Warnings. *Usage in Pregnancy:* Reproduction studies have been performed in animals and there was no evidence of propensity for harm to the fetus. The relevance to the human is not known.

There is no experience in pregnant women who have received this drug.

Precautions. Minor transient elevations of SGOT have occurred in a small percentage of patients. Therefore, this drug should be used with caution in patients with pre-existing liver dysfunction.

Adverse Reactions. The most frequently encountered adverse reactions are related to the gastrointestinal system.

Gastrointestinal and hepatic reactions: anorexia, nausea, vomiting, gastralgia, abdominal cramps, diarrhea and tenesmus, transient elevation of SGOT.

CNS reactions: headache, dizziness, drowsiness, and insomnia. Skin reactions: rashes.

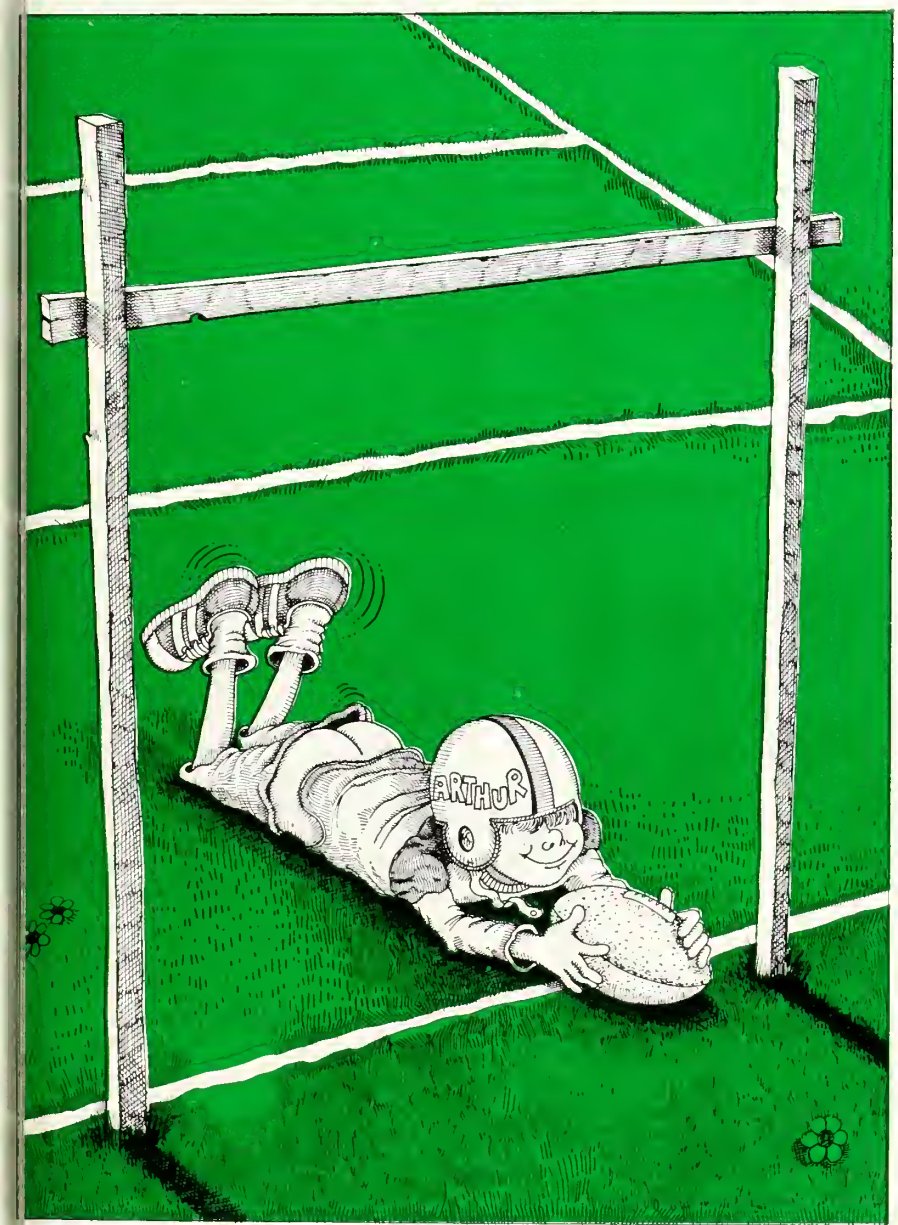
Dosage and Administration. *Children and Adults:* Antiminth Oral Suspension (50 mg. of pyrantel base/ml.) should be administered in a single dose of 11 mg. of pyrantel base per kg. of body weight (or 5 mg./lb.); maximum total dose 1 gram. This corresponds to a simplified dosage regimen of 1 cc. of Antiminth per 10 lb. of body weight. (One teaspoonful = 5 cc.)

Antiminth (pyrantel pamoate) Oral Suspension may be administered without regard to ingestion of food or time of day, and purging is not necessary prior to, during, or after therapy. It may be taken with milk or fruit juices.

How Supplied. Antiminth is available as a pleasant tasting caramel-flavored suspension which contains the equivalent of 50 mg. pyrantel base per ml., supplied in 60 cc. bottles and Unitcups™ of 5 cc. in packages of 12.

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WORMS BLITZED



A single dose of Antiminth (1 cc. per 10 lbs. of body weight, 1 tsp./50 lbs.—maximum dose, 4 tsp=20 cc.) offers highly effective control of *both* pinworms and roundworms.

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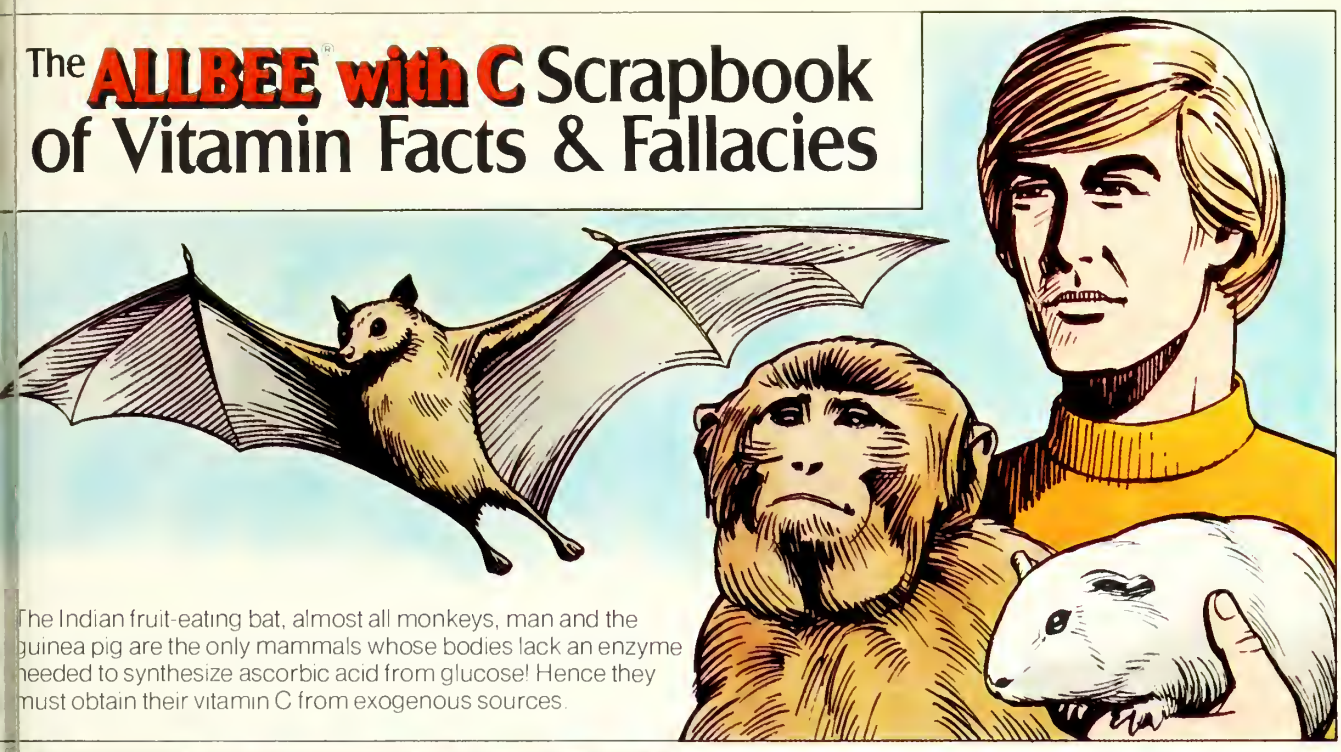
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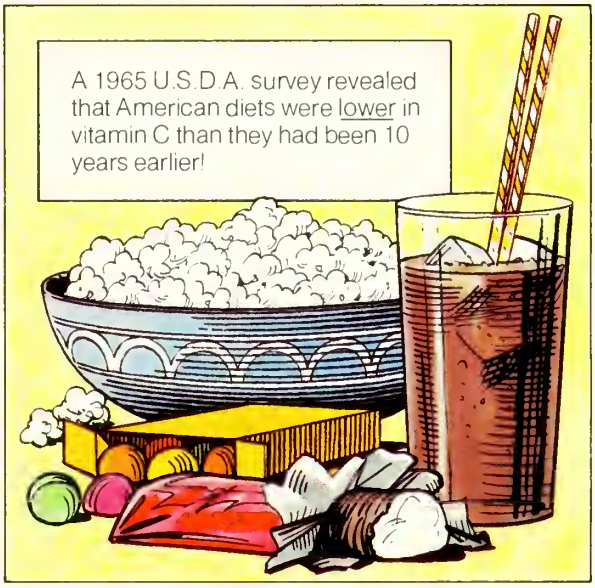
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THE JOURNAL

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NOV 5 1974

DISSEMINATED HISTOPLASMOSIS

SURGICAL INFECTION

CELL SEPARATOR

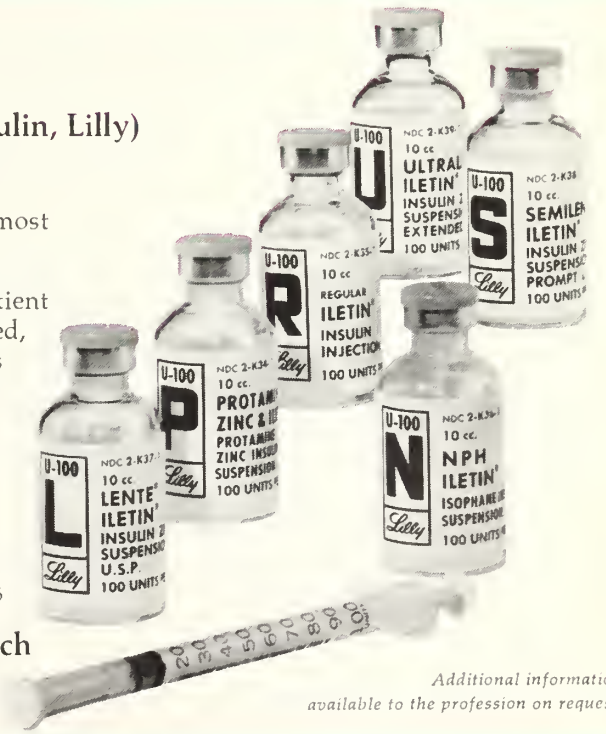
ME 70 OCTOBER 1974 NUMBER 10

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Both often



Predominant psychoneurotic anxiety

Associated depressive symptoms

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful

respond to one

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NOV 5 1974

According to her major
ptoms, she is a psychoneu-
c patient with severe
iety. But according to the
cription she gives of her
ngs, part of the problem
sound like depression.
is because her problem,
ough primarily one of ex-
ive anxiety, is often accom-
ed by depressive symptom-
gy. Valium (diazepam)
provide relief for both—as
xcessive anxiety is re-
d, the depressive symp-
associated with it are also
relieved.

There are other advan-
s in using Valium for the
agement of psychoneu-
anxiety with secondary
essive symptoms: the
notherapeutic effect of
lum is pronounced and
l. This means that im-
ement is usually apparent
patient within a few
rather than in a week or
two, although it may take longer in some patients. In addition, Valium (diazepam) is generally well tolerated; as with most CNS-acting agents, caution patients against hazardous occupations requiring complete mental alertness.

Also, because the psychoneurotic patient's symptoms are often intensified at bedtime, Valium can offer an additional benefit. An *h.s.* dose added to the *b.i.d.* or *t.i.d.* treatment regimen can relieve the excessive anxiety and associated depressive symptoms and thus encourage a more restful night's sleep.

For further information on this subject, the following references are provided:

1. Henry BW, *et al: Dis Nerv Syst 30*:675-679, Oct 1969.
2. Hollister LE, *et al: Arch Gen Psychiatry 24*:273-278, Mar 1971.
3. Claghorn J: *Psychosomatics 11*:438-441, Sept-Oct 1970.



Valium® (diazepam)

2-mg, 5-mg, 10-mg tablets

in psychoneurotic
anxiety states
with associated
depressive symptoms

rv llance because of their predisposi-
n habituation and dependence. In
egancy, lactation or women of child-
ar g age, weigh potential benefit
ai t possible hazard.

ec tions: If combined with other psy-
ot pics or anticonvulsants, consider
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ac on. Usual precautions indicated in
tie ts severely depressed, or with latent
pr sion, or with suicidal tendencies.

Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

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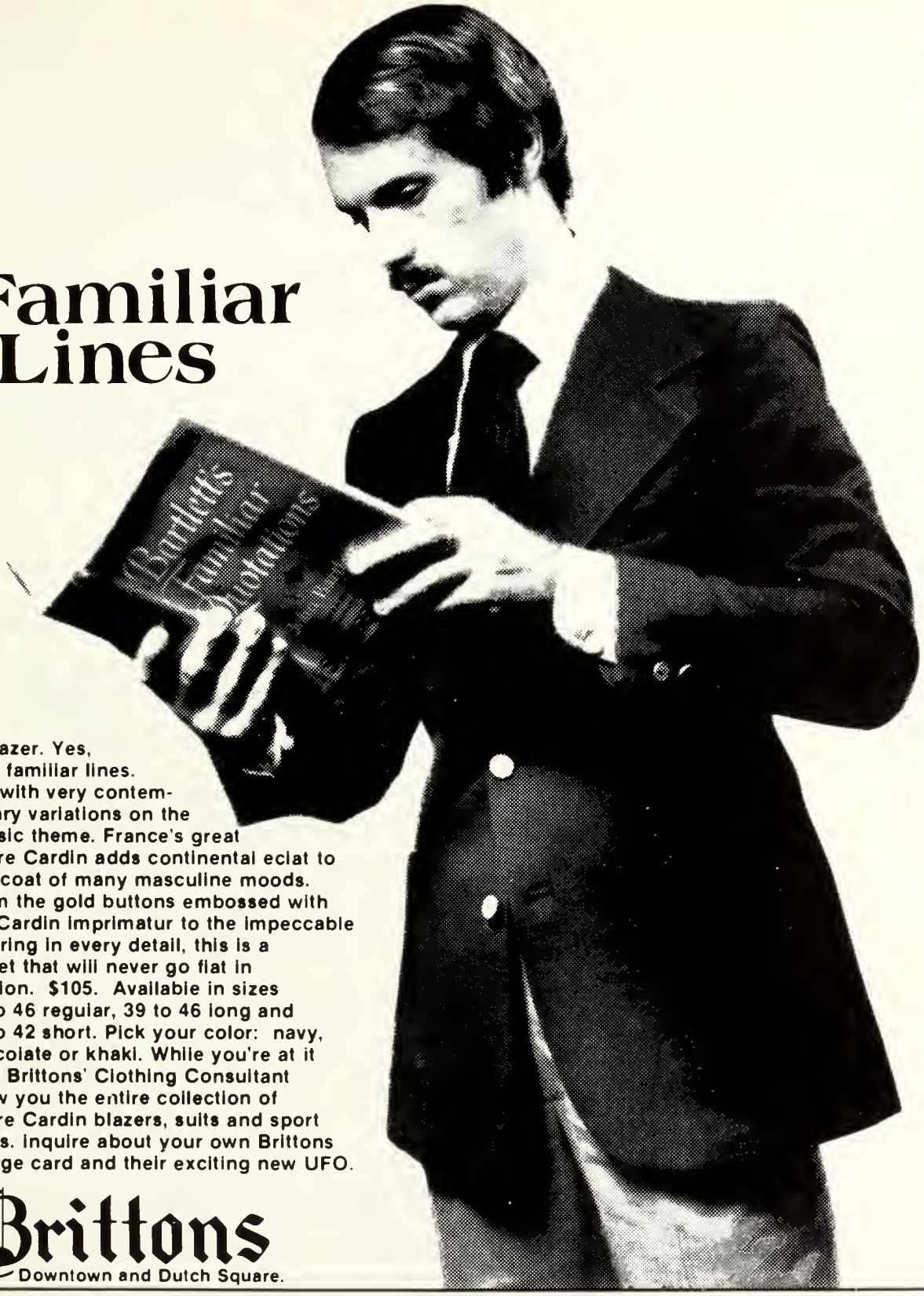
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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association. Business office: 1508 Washington Street, Columbia, South Carolina 29201.

Subscription price: $6.00 in the U. S. ($7.00 per year, Foreign) Second Class Postage paid at Columbia, S. C. and at additional mailing offices.

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Contributions of Original Articles

Length—Short articles of about 2,500 words (about 8 typewritten pages, double spaced) are preferred. Longer articles will defer to the shorter ones in schedule of publication.

Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.

Illustrations—Ordinarily publication of 4 small illustrations or the equivalent accompanying an article will be paid for by The Journal. Any number beyond this must be paid for by the author except under unusual conditions. Illustrators should be sent as glossy prints or graphs in black ink with lettering large enough to show after reduction.

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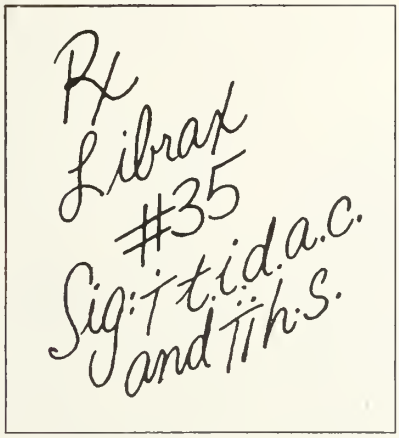
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Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

Dosage: Individualize for maximum beneficial effects. Usual maintenance dose is 1 or 2 capsules, 3 or 4 times a day, before meals and at bedtime. Geriatric patients—see Precautions.

How Supplied: Librax® Capsules, each containing 5 mg chlordiazepoxide hydrochloride (Librium®) and 2.5 mg clidinium bromide (Quarzan™)—bottles of 100 and 500.

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Ulcer-like symptoms: no G.I. pathology



X-ray demonstrates normal stomach.

The patient is convinced he has an ulcer. However, symptoms are not quite typical, and x-ray findings are negative. These findings and the results of additional diagnostic procedures exclude an organic basis for the patient's complaints. A diagnosis of "upper functional gastrointestinal disorder" is made, which is supported by the fact that episodes of painful symptoms coincide with episodes of excessive anxiety, as indicated by the history.

It may be useful to explain to the patient the mechanism by which emotions upset normal G.I. functioning, resulting in hypersecretion and hypermotility and thus causing such symptoms as nausea and epigastric pain. In upper functional gastrointestinal disorders, counseling by the primary physician can often help the patient understand how excessive anxiety may cause flare-ups of G.I. symptoms.

A disproportionate number of patients seen by the general practitioner suffer from functional disorders, as do more than half of those seen by the gastroenterologist.* Where milder cases may respond to counseling alone, if symptoms are severe and disabling to any degree, a suitable regimen may include medication to reduce the symptoms and the excessive anxiety that often provokes these distressing symptoms.

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*Rome HP, Brannick TL: Orientation and mechanism of functional disorders; clinicophysiologic correlation, chap. 133, in *Gastroenterology*, edited by Bockus HL. Philadelphia, W.B. Saunders Company, 1965, p. 1116.

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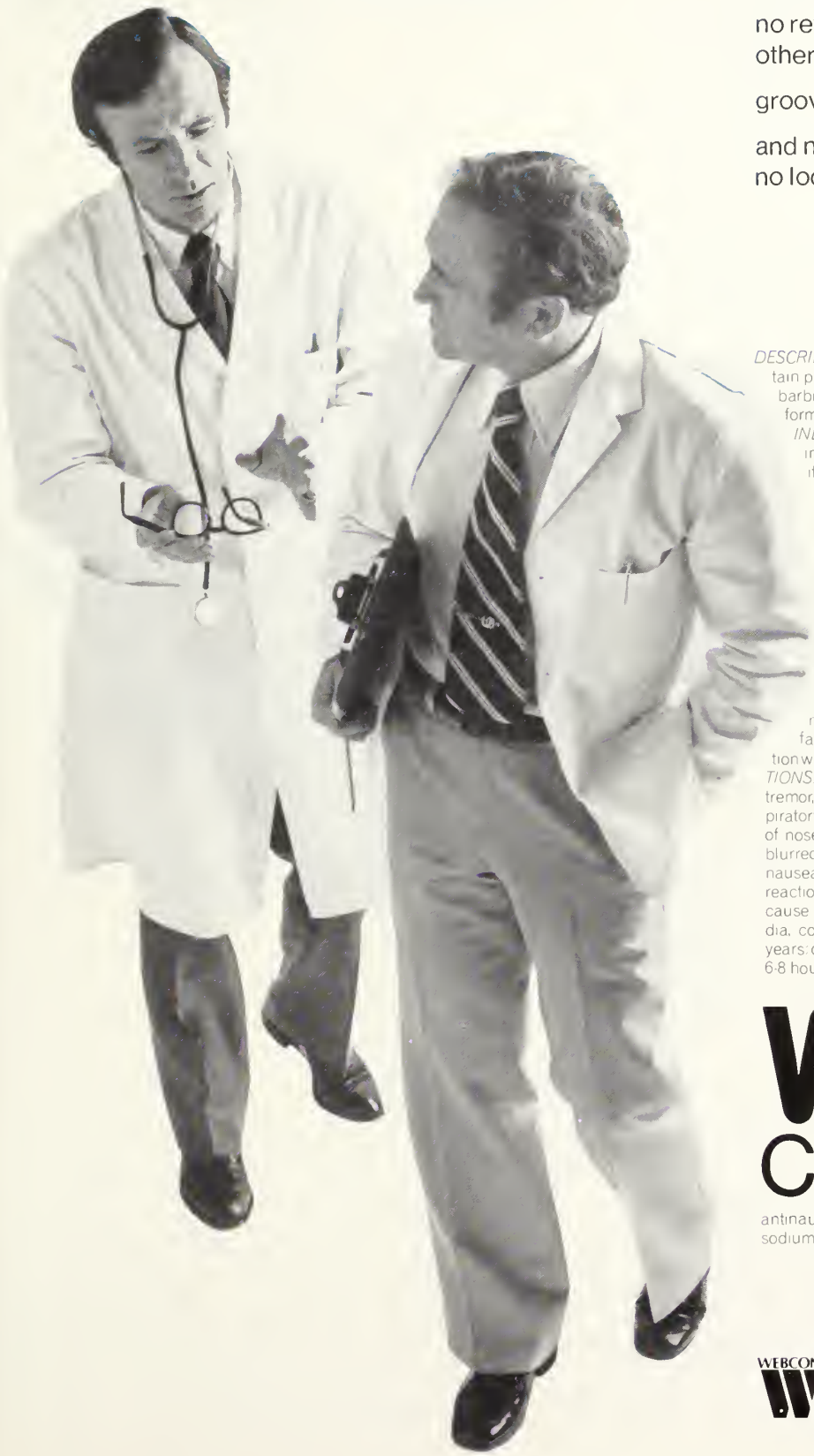
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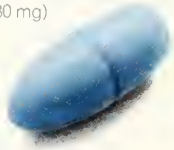
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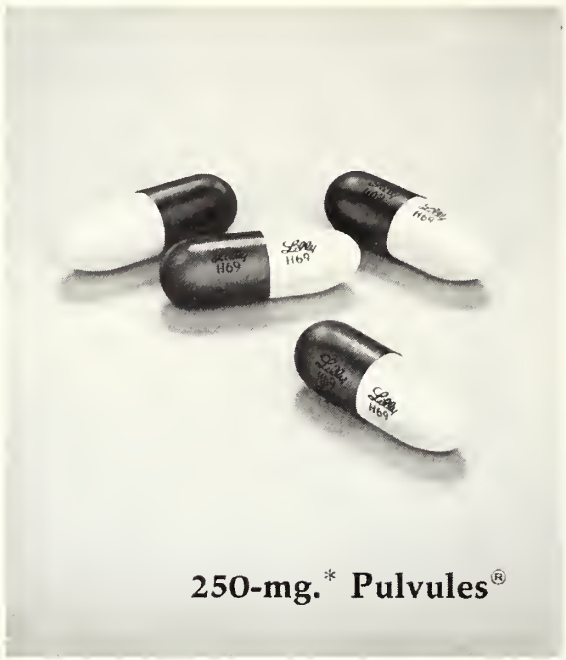
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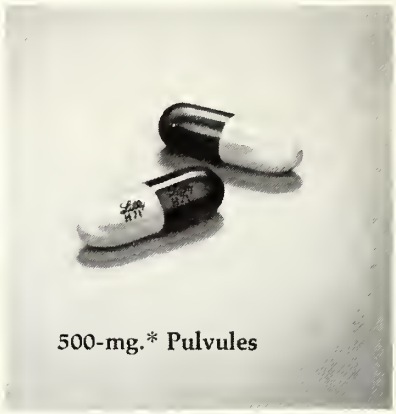
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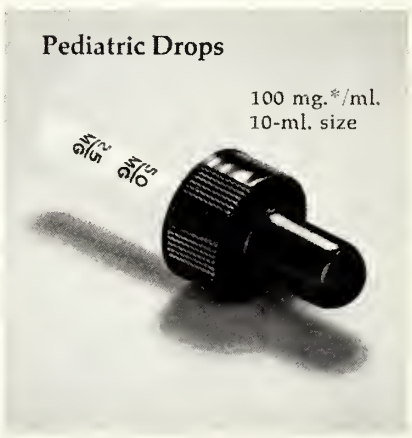
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SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 70 OCTOBER, 1974 NUMBER 10

DISSEMINATED HISTOPLASMOSIS

E. MIMS MOBLEY, JR., M.D.*

INTRODUCTION

Until the last decade histoplasmosis has been rarely seen in South Carolina, this state being one of the last stops on the route of spread of this disease which has moved southward from endemic areas along the east coast and northeastward from the southwestern and Gulf States. In Greenwood, South Carolina, between Ocober 1962 and April 1963 there was a focal outbreak or so-called epidemic of histoplasmosis. Forty-two cases of primary histoplasmosis in which either erythema nodosum or erythema multiforme was the prominent feature were reported by Sellers and Price[1] and subsequently the association of these hypersensitivity skin reactions with the disease has been reported in similar epidemics in Montreal, Canada,[2] and Mason City, Iowa.[3]

It was not until about February of 1963 when it began to be suspected that histoplasmosis might be the cause of this great increase in incidence of erythema multiforme and nodosum in the Greenwood area. The epidemic had passed by the end of the summer of 1963 when the epidemiology studies were completed which confirmed the association of these cutaneous signs with the disease. During that time and since some cases of histoplasmosis have presented without cutaneous signs of hypersensitivity reactions; moreover, in these particular cases the most prominent features were systemic changes. It was felt that these changes represented disseminated histoplasmosis.

In this paper attention will center around a discussion of disseminated histoplasmosis which is relatively rare, occurring in two out of every one thousand cases of histoplasmosis according to Furcolow.[4] For depth of discussion as well as comparison, basic information about histoplasmosis and variations in clinical presentation will also be discussed. Three previously unreported cases, each felt to represent disseminated histoplasmosis, will be reported to show similarities in findings but at the same time pointing out the differences in severity which dictated the treatment regimen of each.

PATIENT "A" — CASE SUMMARY

The patient was a white female who was admitted to the hospital on 1-23-63 at the age of 55 years. She had been having chills and fever associated with nocturnal sweats for approximately six weeks dating back to 12-14-62. She reported that she was usually afebrile during the morning hours but in the evening her fever would occur with temperature elevations as high as 102.5 F. She had some pain in the back of her neck and some headache associated with her fever along with loss of appetite and general malaise. There had been no weight loss or significant nausea or vomiting but she had noted

*Greenwood, S. C.

that her urine was dark for the first two weeks of her illness. Her past history was remarkable in that she had typhoid dysentery at the age of 3 years. She had had several surgical procedures and stated that she had always been a poor healer. She had also had some stiffness in her joints with episodes of bursitis for the past ten years. She had usually taken aspirin for these symptoms but had received cortisone on one occasion in February of 1960.

On physical examination the patient was a well developed and nourished white woman weighing 123 lbs., febrile with temperature elevation to 101 F and she was normotensive. There was a rhinophyma-like deformity of her nose which had been present for several years. Some dilitation of the small venules at the base of the neck was seen but these did not appear as typical spider angiomata. Examination of the chest revealed normal breath sounds over the entire chest and there was no cardiomegaly or heart murmur. Well healed midline and right lower quadrant surgical scars were noted. The liver and spleen were not palpable. The remainder of the physical examination was nonrevealing.

In essence this patient presented as having fever of undetermined origin. The usual laboratory studies for investigating febrile illnesses were begun. A chest X-ray film revealed some evidence of apical cap thickening on both sides and low grade soft densities were seen in the right upper lobe area consistent with granulomatous disease. The patient was not anemic. Her hemoglobin was 12.4 grams but she did show a leukopenia with a white blood cell count of 3,500 with 41 per cent lymphocytes. The remainder of the differential count was normal. Urinalysis, febrile agglutinins and repeated blood cultures were negative. Initial blood chemistry studies for liver disease revealed minimal elevation of the SGOT to 63 units. The serum proteins showed a total value of 6.43 grams per cent with

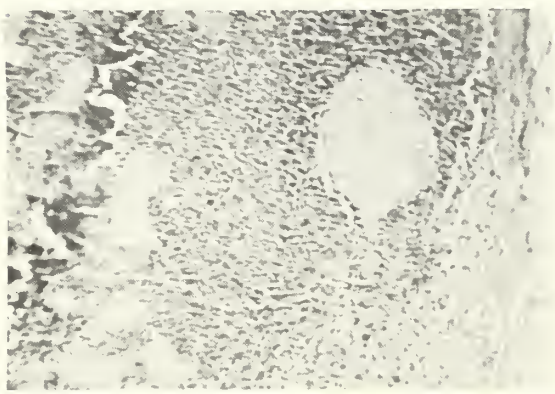


Figure 1. Low power photomicrograph showing granulomatous appearance of scalene lymph node section from patient "A."

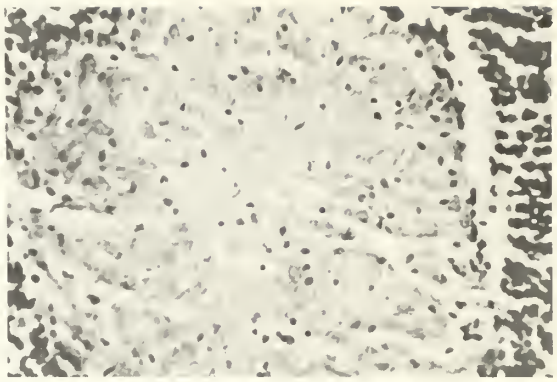


Figure 2. High power photomicrograph of granuloma seen on scalene lymph node section from patient "A."

an albumin fraction of 3.07 grams per cent and a globulin fraction of 3.36 grams per cent. Bilirubin was 0.83 mg. per cent. Cephalin flocculation test showed only a trace at 48 hours. Alkaline phosphatase determination after ten days in the hospital was elevated to 17.35 SJR units with the normal range being 2.2 to 8.6 SJR units. At this time there was also SGOT elevation to 96 units with normal being up to 50 units. A BSP retention test was done on that occasion which showed 42.7 per cent retention of dye at 45 minutes. During the patient's first week in the hospital she did experience a urinary infection with considerable pyuria and culture revealed E. coli with broad sensitivities. Tetracycline therapy resulted in complete clearing of her pyuria. BUN was normal at 13 mg. per cent on admission and one week later. Tuberculin skin test using both second strength PPD and old tuberculin were both negative. Histoplasmosis skin test done initially was negative but this was repeated using a better technique and was found to be positive. Serum agglutination study for histoplasmosis was positive at a titer of 1:128. All during the initial phase of the patient's hospitalization she continued to have temperature elevations with fever spikes as high as 102 F with nightly sweats. On 2-9-63 a scalene lymph node biopsy was performed and in addition to pathological section, cultures were obtained for acid fast organisms, fungi and routine bacterial studies. On histologic section the node was reported as showing Boeck's sarcoidosis of the scalene lymph node; however, within nine days the lymph node had grown a luxuriant growth of H. capsulatum on fungus culture media. The granulomatous appearance of the lymph node microscopically is shown in low and high power magnification by photomicrograph displayed in figures 1 and 2. A photomicrograph of the fungus taken from the culture tube and displayed on wet preparation is shown in figure 3. Blood cultures and bone marrow cultures for fungi failed to show any



Figure 3. Photomicrograph of wet preparation of H. capsulatum taken from fungus culture of scalene lymph node from patient "A."

growth. Subsequent liver function studies showed the alkaline phosphatase to increase as high as 20.8 SJR units. Serum transminase increased to 108 units.

On 3-1-63 in view of the persisting febrile course with pulmonary lesions associated with abnormal liver parameters it was felt that the patient did have disseminated histoplasmosis and that treatment with Amphotericin B was indicated. Treatment was begun on 3-1-63 starting out with 1 mg. Amphotericin B given intravenously with the dosage being gradually increased showing initial febrile reaction to dosages to 20 mg. and 30 mg. but thereafter at a dose level of 50 mg. the patient failed to show any further febrile reaction. This dosage was administered on a daily basis until 4-20-63 at which time she had shown a BUN elevation to 41 mg. per cent; however, there was no anemiaa or thrombocytopenia resulting from administration of this drug. Just prior to starting therapy with Amphotericin B the patient had developed a generalized, somewhat maculopapular rash with one of these lesions being biopsied and showing a nonspecific subcutaneous granuloma. After instituting Amphotericin B therapy these lesions disappeared completely. The patient's nausea and vomiting when receiving Amphotericin B was minimal; however, therapy was interrupted several times because of azotemia being restarted as the BUN would drop down to 30 mg. per cent. On this hospitalization the patient received a total Amphotericin B dosage of 1.523 grams and was discharged on 4-22-63 for a rest period to be readmitted for full treatment toward a total dose administration of 3 grams of Amphotericin B. She remained afebrile once Amphotericin B therapy had been in progress for approximately two weeks.

The patient was readmitted to the hospital on 5-1-63 for continuation of therapy with Amphotericin B. Re-study at the time of the readmission revealed her blood count to be normal with a hemoglobin of 12 grams, white blood cell count of 4,900 and a normal differential. Serum transaminase was 27 units. Alkaline phosphatase was also normal at 7.55 SJR units. BUN was 26.5 mg. percent. Again she was started on therapy with Amphotericin B with monitoring of the BUN, blood count and platelet count and by the end of her hospitalization on 7-6-63 including Amphotericin given on her initial hospitalization, she had received 3 grams of the drug. At the time of her discharge her BUN was 42 mg. per cent. There had been no change by chest X-ray film in the nodular infiltrate seen in the right upper lobe. Liver function studies, however, were all completely within normal limits.

Since her initial hospitalization with diagnosis and treatment for disseminated histoplasmosis the patient has shown no evidence whatsoever of recurrence of the disease. She has tended to show recurrent albuminuria however, although there has been no evidence of renal infection by culture or presence of cellular elements by microscopic examination. Urinary specific gravity generally is in the range of 1.016 with a pH of 5. BUN determinations have remained normal. The patchy infiltrates noted in the right upper lobe area remained stable for approximately two years after treatment but by September of 1967 chest X-ray film was reported as showing complete clearing of the previously described nodular densities. There has been no evidence of adrenal insufficiency in this patient, however she has developed some osteoarthritis consistent with her age and has begun to show some systolic arterial hypertension. She was last seen for a complete physical examination on 12-18-72 with no evidence of recurrence of histoplasmosis at that time. Her age in December of 1972 was 65 years with her disease having been diagnosed ten years previously at the age of 55.

PATIENT "B" — CASE SUMMARY

This patient was a white man who was admitted to the hospital on 5-8-63 at 45 years of age. He had been in good health until he had a virus infection in January of that year at which time he was out of work for approximately four or five days. He had had no further difficulty until approximately two months later when he began noticing weakness in his legs and he felt as though he had a slight cold. He stayed out of work for about one week at that time with some improvement and then approximately ten days prior to his hospitalization he again began to feel weak with a chilly sensation and had been running a low grade fever sometimes as high as 101 F. He had continued to feel generally weakened and had lost approximately five or six pounds. There had been no history of erythema multiforme or erythema nodosum.

His past history indicated that he had supposedly had pneumonia in childhood. At the age of 11 he had experienced a febrile illness which was characterized by painful ankles and knees associated with delirium. He had had mild psoriasis since 1943. His only operations had been a herniorrhaphy and a hemorrhoidectomy.

On physical examination the patient appeared as a well developed, somewhat pale white man who showed evidence of weight loss and looked somewhat chronically ill. He was normotensive, weight 126 lbs., and his temperature was slightly elevated at 99.8 F. There was scarring of both tympanic membranes with some evidence of slight inflammatory change of the left eardrum. There was an area of psoriasis on the left elbow, left knee and left ankle which the patient reported that he had had for a number of years. Examination of the chest revealed the lungs to be completely clear to percussion and auscultation. The heart showed no abnormality by physical examination. On abdominal examination neither the liver nor the spleen could be felt.

As stated, on admission his temperature was 99.8 F and for the first three days in the hospital he continued to have low grade fever of that order. By the fourth hospital day his temperature returned to normal and remained so during the remainder of his hospitalization. During his hospitalization he lost weight down to 118 lbs.

Urinalysis, febrile agglutinins and BUN were all within normal limits. Sedimentation rate was elevated to 22 mm. Blood count showed hemoglobin of 14 grams and white blood cell count of 5,050 with a normal differential count. Evaluation of liver function revealed a total serum protein of 6.89 grams per cent with an albumin fraction of 3.89 grams per cent and a globulin of 3.00 grams per cent. Icterus index was normal at 7.5 units. Cephalin flocculation test was negative at 24 hours and a trace at the end of 48 hours. There was elevation of serum transaminase to 96 units on one occasion and 87 units on another. Alkaline phosphatase was elevated to 9.6 SJR units with the upper limit of normal being 8.6 units. There was a 17 per cent BSP retention at 45 minutes. Thymol turbidity was negative. Chest X-ray film revealed an infiltrate involving the lateral basal segment of the right lower lobe. A histoplasmin skin test was positive and agglutination for histoplasmosis was positive in a titer of 1:256.

In the hospital on restricted activity and general supportive care he began to feel somewhat better, regained strength, became afebrile and gained weight from a low of 118 lhs. back up to 123 lbs. He remained in the hospital until 5-21-63. In view of his improvement it was felt that he could be followed on an outpatient basis but it was presumed that he had mild disseminated histoplasmosis. With improvement showing at the time of discharge it was felt that treatment with Amphotericin B should be withheld and administered only if he showed a worsening condition. By the time the end of this hospitalization had been reached his BSP retention had improved and was only 6.5 per cent in 45 minutes. There had also been improvement in SGOT with this value being reported as 63 units.

After discharge from the hospital the patient was followed closely with evidence of continued improvement. He gained weight up to 130 lbs. in two months following discharge from the hospital and his histoplasmosis agglutination titer dropped to 1:32. SGOT also became completely normal at 32 units. A repeat chest X-ray film on 7-9-63 showed the infiltrative change in the right lung base to still be present but diminished to some extent with a somewhat more fibrotic appearance. Chest X-ray film in August of 1964 was reported as completely negative and has remained so since then. By 1966 his histoplasmosis agglutination titer had dropped to 1:8 in both the histoplasmin and yeast phases and when repeated in July of 1970 was positive only in the yeast phase at 1:8. He has shown no evidence of recurrence of this disease on examination in June of 1973.

PATIENT "C" — CASE SUMMARY

This patient was a white male railroad engineer who had been a known diabetic for several years adequately controlled on Orinase. He was admitted to the hospital at the age of 60 years for the first time on 8-4-65 with a history of having had facial herpes zoster in March and April of that year. Following that infection he had become increasingly weaker and had lost from 175 lbs. down to 140 lbs. He had also noted recurring ulcerative-like lesions around the penis and perineal area for the preceeding two months. In addition he had developed a large furuncle on his back four or five days prior to admission. There had been no previous history of hospitalizations, operations or serious illnesses, and system review was essentially non-revealing.

On his physical examination on that admission he was normotensive with a blood pressure of 130/80. His weight was 150 lbs.; however, he was febrile at the time of admission with his temperature being 100.2 F reaching a maximum elevation of 101.2 F on the initial hospital day. He appeared somewhat thin but the only significant physical findings other than the fever and weight loss were the large furuncle located between his scapulae and several small, dry, shallow ulcerative lesions measuring about 2 to 4 mm. in diameter about the foreskin and perineum.

He was found to be anemic on that admission with a hemoglobin of 11.2 grams, hematocrit of 35 per cent, white blood cell count of 6,350 with

a normal differential count. BUN was only minimally elevated at 24 mg. per cent and his blood sugar showed his diabetes to be out of control at 400 mg. per cent. A chest X-ray film showed diffuse fibrotic changes but nothing acute.

On that hospitalization he was placed on penicillin for the abscess on his back and surgical incision and drainage was performed. He became afebrile within 72 hours. An excisional biopsy of the perineal ulceration was done and the prepuce lesions were excised for biopsy by circumcision. The pathology report on these surgical specimens reported chronic ulceration of skin with large inclusion bodies being noted. They were not typical of Donovan bodies. He was discharged on iron for his anemia and his diabetes now required NPH insulin in a dosage of 30 units daily for control.

Because of persistent anemia and weakness he was readmitted to the hospital on 9-19-65. On that admission his diabetes remained controlled on NPH insulin. His anemia was moderate with a hemoglobin of 9.6 grams and hematocrit of 30 per cent. Again white blood cell count and differential count were normal and blood indices were normocytic normochromic. There was 4 per cent reticulocytosis. Bone marrow study was essentially normal. There was no evidence of melena by stool examination for occult blood and barium enema was also negative. Upper G.I. series had been done on his previous admission and reported as negative. A Schilling test was abnormal showing only 3.2 per cent excretion. The patient remained afebrile during this hospitalization. There was still no demonstrable malignancy in this patient though the possibility of occult malignancy was felt to be quite real. The patient did not desire to stay in the hospital for further studies; therefore, he was discharged on hematinics including B-12 while the possibility of occult malignancy was still considered to be a likely diagnosis.

The patient's weakness continued and his physician readmitted him to the hospital on 10-24-65 to rule out intra-abdominal or retroperitoneal malignancy. In the interim between his initial hospitalizations he had developed slight hepatomegaly. Further pathology studies on the skin ulcers biopsied on his initial hospitalization indicated that the inclusion bodies seen microscopically were compatible with histoplasmosis. Bone marrow culture was then obtained for fungi but it was negative. A histoplasmosis agglutination test was positive however, in a dilution of 1:128. Since his initial hospitalization when his BUN was 24 mg. per cent, the BUN had now become elevated to 57 mg. per cent with a serum creatinine of 2.5 per cent. The liver was only barely palpable 2 cm. below the right costal margin. SGOT was normal at 36 units. Alkaline phosphatase was also normal at 7.2 SJR units with the normal range being 2.2 to 8.6. Serum proteins with A-G ratio showed some increase in the globulin fraction to 3.81 grams per cent and the serum bilirubin was normal at 0.70 mg. per cent. Urinalysis was abnormal showing a 2+ reaction for sugar, sp. gr. was 1.008 and innumerable white blood cells appearing in clumps were seen. A serum protein electrophoresis showed the elevated globulin fraction to be composed largely of gamma globulin being reported at 2.22 grams per cent with the beta globulin being 1.42 grams per cent. PSP excretion was diminished to 5.6 per cent at 15 minutes, 8.3 per cent at one hour and an additional 3.2 per cent at 2 hours. Urine culture revealed the presence of hemolytic staph albus coagulase negative. It was sensitive to nearly all antibiotics known to be effective on gram positive organisms. An infusion intravenous pyelogram was done which showed poor function bilaterally but no great decrease in kidney size. Urine culture became negative on treatment with penicillin. The patient's anemia persisted with hemoglobin dropping as low as 7.5 grams.

It was felt that the patient probably had systemic histoplasmosis with renal histoplasmosis as well. His anemia was improved with blood transfusions and it was decided to treat this patient with Amphotericin B realizing that there was significant pre-existing renal impairment. This was accomplished with administration of the drug three times a week working up to a maximum single treatment dose of 50 mg. On that hospitalization he received 1.1 grams of Amphotericin B. Initially he showed febrile responses to the drug but subsequent infusions were absorbed without any reaction whatsoever. It is interesting to note that prior to starting therapy one of the patient's main complaints had been a persistent raspy feeling in his throat as if he had something scratching in his throat all the time. As Amphotericin therapy progressed for several treatments, this sensation in his throat disappeared completely. His appetite became quite good, he improved in all respects and had gradual weight gain. Because of his good response to therapy he was feeling quite well and would not consent to stay in the hospital for further Amphotericin administration. He was discharged on 1-10-66 having received 1.1 grams of Amphotericin.

In the year that followed the patient felt generally fairly well. He was able to return to full time work and his hemoglobin stabilized at 12.5 grams with no hematinics. His diabetes also remained well controlled on 30 units of NPH insulin daily.

From 12-16-66 through 6-12-67 the patient was lost to follow-up but on that latter date re-

ported for examination having lost 8 lbs. and complaining of feeling weak, dizzy and washed out. He appeared pale and indeed his hemoglobin was 9.3 grams. The patient was readmitted to the hospital on 6-14-67. The only remarkable physical finding on this occasion was some atrophy of the interosseous muscles of both hands which had developed since receiving therapy with Amphotericin B 1½ years previously. His significant laboratory studies were as follows: BUN was elevated to 46 mg. per cent with Creatinine of 2.9 mg. per cent. Urine culture was positive for Pseudomonas organism and an intermediate coliform organism but negative for fungi. Histoplasmosis agglutination was reported as positive in a dilution of 1:256. There was no abnormality of liver function as measured by total bilirubin, SGOT, LDH, alkaline phosphatase or serum proteins. He was anemic with his hemoglobin being recorded as 9.7 grams, hematocrit 33 per cent; white blood cell count and differential count along with platelet count remained normal. Chest X-ray film on this admission was somewhat different from his previous films showing faint, almost miliary fibrotic changes slightly more prominent in the upper lobe areas. It was elected to treat this patient again with Amphotericin B. He was started on increasing doses, working up to a single infusion of 50 mg. intravenously on three occasions each week. He once again became anemic on this medication, however, platelet count and measurement of the BUN did not change significantly. He received a total dose of one gram of Amphotericin B on that admission and at the time of discharge his BUN was 46 mg. per cent with a Creatinine of 2.7 mg. per cent. Once again on this admission as treatment progressed his strength returned and it is interesting that repeat urine culture toward the time of discharge was reported as sterile with the patient having received no specific therapy for Pseudomonas or intermediate coliform organism during his hospitalization.

The patient once again returned to work after having been discharged from the hospital on 8-17-67 following his second hospitalization for treatment of systemic histoplasmosis with Amphotericin B. He did well for slightly over a year after that but then was readmitted to the hospital on 11-30-68 with anemia secondary to azotemia and pyelonephritis due to Staph. epidermidis. He was febrile on that hospitalization with temperature on admission of 101 F. He improved on treatment for pyelonephritis due to Staph. epidermidis though the possibility of recurrent histoplasmosis was considered. On that admission his BUN had risen to 74 mg. per cent and Creatinine was 4.3 mg. per cent. It was felt that these levels made further Amphotericin therapy prohibitive. Liver function parameters continued to be essentially normal. He was discharged on that occasion on 12-31-68.

In the seven months between December 1968 and July 1969 the patient was admitted to the hospital five more times. On most of those admissions the primary problem was one of pyelonephritis with uremia and anemia. Histoplasmosis agglutination titer remained positive in a dilution of 1:256. On one of these admissions in February of 1969 he had a G.I. hemorrhage resulting from a gastric ulcer.

He was admitted for his final hospitalization on 7-3-69 because of anemia, weakness and had a black, tarry stool on the day of admission. He appeared quite thin and debilitated. He was uremic with elevation of the serum phosphorous to 13.2 mg. per cent with a low calcium of 8.6 mg. per cent. BUN was 136 mg. per cent with a Creatinine of 8.1 mg. per cent. LDH was elevated to 405 units with alkaline phosphatase of 250 units with a normal range being up to 85 units. Transaminase was elevated at 158 units with a normal range up to 50 units. A report of histoplasmosis studies obtained on the previous hospitalization in June which had been sent to the state lab was now received showing histoplasmosis titer of 1:512 in both histoplasmin and yeast phases. The patient's course was steadily downhill during that hospitalization and he expired on 7-11-69. Autopsy was obtained with the most striking findings at the autopsy being the presence of granulomata in the liver, adrenal glands, kidneys, spleen and lungs. Introcytoplasmic PAS positive micro-organisms were demonstrated consistent with H. capsulatum. Granulomata varied in age from acute with prominent caseation to fibrous scars. Associated with the hepatic granulomata was prominent bile stasis, the result of obstructive effects of both post-granuloma scarring and edema surrounding more acute granulomata. The numerous acute granulomata within the adrenal glands were of sufficient extent to have resulted in some adrenal insufficiency. Although not striking, the histologic changes within the kidneys were consistent with toxic effect of Amphotericin B. The most extensive damage in the kidneys however, resulted from the many granulomata within the cortex. Focal areas of chronic pancreatitis were present incidental to previous episodes of acute pancreatitis from ductilar sludging. Areas of acute pancreatitis and prominent acinar ectasia were also present. It was felt that this man presented both clinical and pathological changes classical for disseminated histoplasmosis, and expired of this disease at the age of 63 years, approximately 4 years after the disease had become clinically apparent.

DISCUSSION

The three cases presented above are felt to represent examples of disseminated histoplasmosis of variable severity with some variation also in their clinical presentation.

Patient "A" presented as a toxic, febrile patient with alteration of liver function and pulmonary infiltrative changes by chest X-ray film. Diagnosis was suspected on the basis of positive histoplasmosis skin testing as well as positive histoplasmosis agglutination. The diagnosis was proven from growth of the fungus in a scalene lymph node which had been biopsied and cultured for fungi. Because of the persistent toxicity and evidence of a worsening state, treatment with Amphotericin B was administered to a full 3 gram total dose. There has been no evidence of recurrence of disease in this patient nor has there been any suggestion of adrenal insufficiency. Recurrent albuminuria does probably represent some degree of nephrotoxicity from treatment with Amphotericin B.

Patient "B" had experienced low grade illness for three months with periods of fever and progressive weakness. When first seen he was not as febrile as patient "A" and did not appear as toxic. There was evidence of alteration in liver function and pulmonary infiltrative changes were seen by chest X-ray film. Histoplasmosis skin test and agglutination test were both positive. Improvement followed conservative therapy and he did not require treatment with Amphotericin B. He has shown no evidence of recurrence of this disease.

Histoplasmosis was not suspected initially in patient "C" who ultimately was the most severely ill and the only known fatality of this disease in the Greenwood area. He did not present as a systemic illness and actually had fever due to an abscess on his back which cleared up completely with drainage and treatment with penicillin. The diagnosis came later after further study of biopsied skin lesions suggested that they were due to H. capsulatum. Chest X-ray changes initially showed only old fibrotic pulmonary changes with other pulmonary X-ray changes appearing as the systemic features of the disease began to become more apparent and the histoplasmosis agglutination titer was found to be positive and increasingly elevated. Improvement following an initial course of Amphotericin B lasted for about 1½ years with re-treatment being required followed by a slightly shorter period of improvement. Because of nephrotoxicity a full 3 grams of Amphotericin B could not be administered to this patient. The patient ultimately died of disseminated disease with uremia and adrenal insufficiency. A very similar case has been reported by Reddy et al.[5] and a cooperative study for long term follow-up of disseminated histoplasmosis cases reported by Sarosi et al. serves to point out the efficacy of treatment by Amphotericin B but also shows the high incidence of adrenal insufficiency in treated as well as untreated patients.[6]

Hereafter in this paper, while reviewing basic knowledge of histoplasmosis as well as the diagnosis and treatment, the three preceeding cases will be referred to as it seems indicated.

GEOGRAPHIC LOCATION

As stated in the introduction, histoplasmosis is relatively new to South Carolina. In this country it was initially found in its benign primary form in the Mississippi and Ohio River valleys. Subsequently it has been found to exist in the St. Lawrence River valley and along the Atlantic coast from New England to North Carolina. It has been reported for some time in Central America, South America, northern Europe and Australia.[7,8]

CHARACTERISTICS OF H. CAPSULATUM

H. capsulatum differs from other human pathogenic fungi in that it is almost exclusively intracellular and primarily a parasite of the reticuloendothelial system. In the human it may be

found in tissue sections, sputum, mucosal ulcers, blood and bone marrow.[7] A recent prospective study of progressive disseminated histoplasmosis in twenty-six patients reported by Smith and Utz[9] points out the variety of sources from which the organism can be obtained in the human.

The organism is cultured at room temperature on Sabouraud's media or brain-heart infusion blood agar. It appears as a mycelial growth with large round or pear-shaped tuberculate spores. In the soil it is present in a sporulating form as a saprophyte especially in soil contaminated with excreta from birds, especially starlings.[7,8]

PATHOGENESIS

It is now felt that the lung is the only portal of entry although until fairly recently gastrointestinal lesions were thought to represent sites of primary infection. Schwartz maintains, however, that because the organism exists in the soil as a sporulating form it is therefore inhaled, entering the lungs and subsequent sites of infection are disseminated from the lungs. He likens it much to the primary infection of tuberculosis and suggests that (1) the organism is initially inhaled into the lung where (2) there forms a focus of infection from which there is (3) spread to regional lymph nodes then (4) through the lymphatics to the general circulation by means of which it reaches (5) the reticuloendothelial system, especially the liver and spleen where it then acts as an intracellular parasite.[8]

Families moving into an endemic area seem to be more susceptible to the disease as shown in a report by Perkins et al. describing infection in two families who moved into a suburban development in Columbus, Ohio.[10]

Although none of the three patients presented here had physically detectable splenomegaly, they all had X-ray evidence of some type of infection foci in the lungs. Altered liver function studies were seen in two of the patients; there was growth of the organism from a cultured lymph node in one patient and microscopic observation of inclusion bodies in skin lesions biopsied in one of the patients.

TYPES OF INFECTION

The disease has been recognized in four different forms depending upon sites of infection and severity of illness.

There is one form of the disease which is so mild that the patient cannot recall having ever been sick yet his chest X-ray film will show calcified lesions usually in the lower lobe or the lower portions of the upper lobe. This form of the disease is referred to as Benign Self-limiting, or Benign Primary Histoplasmosis.

The second form, which is somewhat more severe in that the patient is aware of illness, is called Acute Pulmonary Histoplasmosis, or Epidemic Primary Histoplasmosis, according to Hinshaw and Garland.[7] In this form of the disease there is an incubation period which varies between five and eighteen days and the patient will then have a rather sudden onset of an influenza-like illness with weakness, malaise, nonproductive cough, vague chest pains, and high fever. The findings on chest X-ray films may be quite variable. A single nodule or coin lesion representing a histoplasma granuloma is seen in a high percentage of cases. Other types of X-ray findings include hilar lymphadenopathy, miliary lesions and bronchopneumonia infiltrates. Epidemic Primary Histoplasmosis usually goes on to spontaneous remission in about six weeks without treatment; however, Hinshaw and Garland suggest that treating these patients for seven to fourteen days with Amphotericin B may hasten their recovery and prevent protracted illness.[7] It is possible that patient "B" had this form of the illness since he had recovered two months after his hospitalization; however, his history of "virus infection" three months earlier with recurrent fever and other systemic symptoms between the initial onset of illness and hospitalization along with his altered liver function sug-

gests that he may have had the primary epidemic form which became disseminated.

The next form of the disease to be described is known as Progressive Disseminated Histoplasmosis, and it is felt that the three patients presented in this paper are representative of this form of the disease with varying degrees of severity. This form of the disease may be slowly progressive as in these three patients or it may be rapidly fulminating. It especially involves the reticuloendothelial system. Any of the pulmonary findings by chest X-ray described in the discussion of Primary Epidemic Histoplasmosis may be found. Two patients in this report had significant chest X-ray findings and the third patient, patient "C," eventually showed significant chest X-ray findings. Altered liver function was apparent in patients "A" and "B" though it did not appear in patient "C." Mucous membrane lesions may be present but none of these three patients demonstrated such lesions. Skin lesions of two types have been reported—those of primary inoculation and those of dissemination. Patient "A" did develop a cutaneous eruption which biopsy revealed to be a subcutaneous granuloma. Patient "C" had ulcerative lesions of the perineum and foreskin which biopsy showed to contain histoplasmosis organisms microscopically. These types of skin lesions are felt to represent actual sites of infection in contradistinction to the allergic skin reactions typified by erythema nodosum and erythema multiforme. Anemia and leukopenia are also prominent features of disseminated histoplasmosis. Patients "A" and "B" had some degree of leukopenia and there is no question about the severity of the anemia in patient "C." There may be even greater bone marrow suppression and Davis and Ripka have reported a patient with pancytopenia who was chronically ill for some time before a bone marrow culture was obtained and subsequently grew out H. capsulatum. Following treatment with Amphotericin B the bone marrow elements returned to normal and the patient recovered completely.[11] There may be spontaneous recovery from this form of the disease but the patient who is severely ill may succumb if treatment with Amphotericin B is not administered.[7]

The last form of histoplasmosis to be discussed is manifested by chronic progressive pulmonary disease leading to cavitation. This is usually referred to as reinfection Histoplasmosis because it closely resembles reinfection tuberculosis. Usually patients with this form of the disease are men over 40 years of age and in most instances sputum cultures are positive for H. capsulatum.[12] These patients are frequently found in tuberculosis sanatoria and indeed the two diseases, histoplasmosis and tuberculosis, may coexist in the same patient. The mortality rate in this condition is high but fortunately Amphotericin B is effective in a majority of patients though relapse is very common.[7,13]

DIAGNOSIS

It goes without saying that a complete history and physical examination is of primary importance. Historically the patient may tell of a flu-like illness which became protracted. The physical examination is remarkable by the absence of findings beyond fever; however, there may be hepatosplenomegaly, mucous membrane lesions or skin lesions of histoplasmosis. Certainly the diagnosis should be considered in any patient showing erythema nodosum or erythema multiforme.[1,2,3] As in most febrile illnesses where physical findings are sparse, one must study the patient further with appropriate laboratory tests and X-ray examinations.

Of these tests, the chest X-ray is probably one of the most helpful because of the high incidence of positive roentgenographic findings in the absence of specific physical findings. Earlier in the discussion, the wide variability in the appearance of chest X-ray findings was described. Certainly the appearance of a

pulmonary granuloma or bronchopneumonia infiltrate by chest X-ray in a patient with a rather protracted flu-like illness should arouse suspicion pointing to the need for further studies.

Among these additional studies, the histoplasmin skin test is the first indicated. Sometimes early in the disease it may be negative but it is usually positive after three to six weeks. Skin tests for other fungi should be done at the same time because of a form of cross reaction; however, even where there is cross reaction, the skin test is most positive to the specific antigen representing the patient's disease. Of course, tuberculin skin testing is also indicated and it is most helpful if it is negative.

The histoplasmosis agglutination test is easily obtained in kit form. It is performed by mixing different dilutions of patient serum with antigen treated latex particles. Flocculation or clumping of these particles with a patient serum dilution of 1:8 is felt to indicate active infection. The size of the clumps in the flocculum is often a better index of positivity than how far down the line of dilutions flocculation is seen to occur.

Complement fixation testing is not available in most hospital laboratories but it can be obtained fairly readily in a number of laboratories around the country; especially from the U. S. Public Health Service and now in our own state from the laboratory of the South Carolina Department of Public Health. In evaluating the complement fixation test, a rising titer is of considerable importance and it usually reaches its maximum at about the third week and declines after four to eight months.

Sputum may produce a positive culture for histoplasmosis in the cavitary form of the disease; however, in the primary infection a positive sputum culture would be most unlikely.

As was readily apparent in patient "A," scalene node biopsy may be the most definitive diagnostic test if cultures of the scalene node are done. The histologic section alone may be misleading, at it was in patient "A" being reported initially as sarcoidosis because of the appearance as a nonspecific granuloma. A review article on Scalene Node Biopsy at the Palo Alto Clinic and Stanford University School of Medicine by Lillington and Jamplis points out that granulomatous change in a lymph node is indeed a nonspecific finding and portions of the resected node should be cultured for acid-fast organisms and fungi.[14] A later report by Wolf of a patient with cancer of the lung whose scalene node histology was compatible with sarcoidosis further illustrates the hazard of an uncritical acceptance of this diagnosis when the other clinical features of sarcoidosis are absent.[15]

Cultures of the blood or bone marrow for fungi may result in growth of the organism, but in the patients presented here we have been unsuccessful in obtaining a positive culture from this source.

Biopsy of any unusual skin lesion especially one of an ulcerative nature may often show the presence of the organism as inclusion bodies as was the case in patient "C."

TREATMENT

For years no fungicidal agent for systemic treatment of histoplasmosis was available; however, during the past two decades such an agent has been available. This agent derived from Streptomyces nodosus is Amphotericin B. The drug is fungicidal but has no antibacterial properties. In histoplasmosis, as well as other mycotic infections, it is quite effective; however, there are features which make it difficult to use. It can be administered only by intravenous drip, being mixed with 5 per cent glucose in water. It is not truly miscible in this solution and actually forms a fine colloidal suspension. Because of the suspension nature of the mixture it must be given slowly over a six hour period, and because ultraviolet light has an altering effect on the compound, the infusion bottle should be shielded from

sunlight by a paper bag.[16]

In addition to the difficulties encountered in administering the drug from a technical standpoint, its administration is also accompanied by a definite side reaction. Drug fever is frequently seen during the first few days of the administration; both patients "A" and "B" exhibited a febrile response initially. Chills may also be noted. Nausea and vomiting is such a common reaction to the drug that most authors recommend giving 50 mg. of Dramamine empirically on each morning the treatment is to be given; this was done with patient "A" with some lessening in her nausea and prevention of vomiting; however, patient "C" did not require this.

The drug seems to try to discourage its administration further by acting as an intense irritant to the veins, the only route of administration for systemic treatment. Because the treatment is prolonged requiring many weeks, in patient "A" requiring eighteen weeks, every effort must be made to protect the veins such as starting with venipunctures on the backs of the hands and progressing up the arm as smaller veins fall victims to the phlebitis-producing properties of the chemical. Naturally the foot and leg veins are not used because of the danger of further complicating matters with a deep vein thrombophlebitis. The injection of 25 mg. of Solu-Cortef directly into the intravenous tubing after starting the treatment infusion has been felt to be helpful in reducing the inflammatory response in the vein being used. In one report systemic reactions to the drug were also reduced from 78 per cent to 56 per cent by intravenous injection of 25 mg. of Hydrocortisone. It is also possible that these patients who frequently have waning adrenal function may be systemically benefited by these small intermittent doses of Hydrocortisone.

The foregoing are general side effects most commonly encountered when Amphotericin B is administered intravenously. Idiosyncracy reactions can also occur and they include anaphylactoid shock, thrombocytopenia, acute liver failure, flushing, vertigo, generalized pain, grand mal convulsions, cardiac arrest, and ventricullar fibrillation.[17]

Nephrotoxicity is commonly seen in patients treated with Amphotericin B with azotemia, decreased renal concentrating power and decreased PSP excretion ocurring in three-fourths of the patients receiving the drug. Alteration in renal function has been accessed and changes in renal morphology have been studied in eighty-one patients and reported by Butler et al. Elevated BUN was seen in 93 per cent of the patients with the maximum rise being directly related to total dose of the drug given. Patient "A" did show elevation of the BUN and still has some persistent evidence of nephrotoxicity at this late date with periodic albuminuria. Patient "C" in addition to experiencing nephrotoxicity from Amphotericin B had pre-existing renal histoplasmosis and at autopsy showed renal lesions of histoplasmosis as well as renal changes which are seen as a result of Amphotericin nephrotoxicity. In the cases reported by Butler, abnormalities of renal function persisted after treatment in a greater percentage in the group of patients who received more than 4 gms. of Amphotericin B. The histopathological changes in the kidney consisted of tubular damage with calcium deposition[18] as also shown in patient "C" in this report.

Anemia may result from use of this drug and it is felt to be caused by decreased red cell production due to bone marrow suppression. Even though azotemia frequently occurs in patients receiving Amphotericin B, the anemia which may be seen is not felt to be a result of azotemia since hematocrit drops to 14 and 18 per cent have been reported in patients under treatment who were not azotemic.[19] Patient "A" who showed mild anemia as a result of her primary infection had no worsening of her anemia after

starting on treatment even though she did become azotemic. Patient "C" did become more severely anemic after treatment was begun and required blood transfusion.

In view of the difficulties encountered in administering the drug and the side effects and toxic changes induced by the drug, it is readily apparent that Amphotericin B should not be given to a patient unless its use is clearly indicated. These side effects and toxic changes should not intimidate one to withhold treatment when it is indicated. If it is to be used, frequent determinations of BUN, platelet count and complete blood count are mandatory.

The question arises—what patients should be treated? The fact that none of the forty-two patients reported by Sellers and Price required treatment shows that most patients with primary histoplasmosis infections do not require treatment with Amphotericin B; however, treatment is indicated in those patients who are debilitated or in those patients who are having a more severe or prolonged illness as well as in those patients where there may be evidence or progression to dissemination. Those patients who have obvious disseminated histoplasmosis and are toxic as well as those patients who have pulmonary cavitary disease should receive treatment. In some instances, such as patient "B" where the patient does not appear to be severely ill and seems to be improving without treatment, certainly treatment should be withheld.

The impact of Amphotericin B treatment on severe histoplasmosis was shown in a comparison of treated and untreated cases reported by Furcolow. In disseminated cases the mortality rate was 83 per cent without treatment as compared with a 23 per cent mortality in those who received treatment. In the group treated for chronic pulmonary histoplasmosis results were closely related to total dosage of Amphotericin B administered. Smaller total dosage up to 25 mg./Kg. of body weight produced a decrease in mortality and slowed progression of the disease; however, the relapse rate was high. In those patients receiving more than 25 mg./Kg. of body weight the mortality rate and incidence of progression were reduced still further.[20] The cooperative study reported by Sarosi et al. certainly bears out these statistics for disseminated histoplasmosis. Twenty of twenty-two patients who did not receive Amphotericin died from two weeks to sixty-seven months after diagnosis with sixteen of them dying within four months. Of twenty-four patients receiving Amphotericin B therapy intravenously all but three of the patients survived at least eight months and nine were currently alive at the time of the report. Improvement correlated well with early Amphotericin therapy in a total dose of 38 mg./Kg. of body weight. Adrenal insufficiency developed in half of the patients regardless of the treatment and was the commonest cause of death. Only two patients who developed the complication of adrenal insufficiency were still alive at the time of the report indicating that the management of adrenal insufficiency following histoplasmosis is indeed difficult.[6]

SUMMARY

Disseminated histoplasmosis is a relatively rare condition occurring in only two of every one thousand patients who have histoplasmosis. Three cases of disseminated histoplasmosis have been presented in this paper to demonstrate the variability of the degree of severity of this form of histoplasmosis. Description of other forms of histoplasmosis has been presented also. The epidemiology and pathogenesis of histoplasmosis has been discussed in addition to the clinical and laboratory features of the disease which aid in its diagnosis. The only treatment for the disease is the administration of intravenous Amphotericin B, a drug with many side effects in addition to its nephrotoxic and bone marrow suppressive properties. The prognosis of disseminated disease in the severely ill patient without

treatment is extremely poor and is only fair in those patients who are treated. Long term follow-up studies have shown that there is a high incidence of adrenal insufficiency developing in patients with disseminated disease whether or not they have received treatment.

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wound infection in a relatively small percentage of patients worth the potential hazard of the slight, but real, possibility of an adverse reaction to the antibiotic, and the hazard of promotion of growth of resistant organisms in the hospital as a whole, and perhaps in that given patient? This can only be decided in the case of the individual patient by his own surgeon. In cases where contamination is predictable and the likelihood of infection is high, a prophylactic antibiotic appropriate to the probable flora to which the patient will be exposed (GI tract, urinary tract, pulmonary, etc.) would be considered worthwhile. In this case, one could perhaps quarrel with the use of the word "prophylactic" and say that antibiotics used in this manner are therapeutic rather than prophylactic. In the patient whose own defenses against bacteria are seriously compromised by steroids, some hematologic diseases, uremia, or other disease, the use of an appropriately chosen antibiotic prior to operation is considered worthwhile where intra-operative contamination is probable. In the patient in whom the surgeon intends to implant prosthetic material, known for its inability to cope with infection, the use of a carefully chosen prophylactic antibiotic is appropriate.

Finally, though it hardly needs reemphasizing, the most important defenses against infection are those of the body itself. All wounds are contaminated at the end of surgery and it is amazing that so few actually develop clinical infection. Gentleness in handling tissues, prevention of hematomas, obliteration of "dead space" in wound closure, avoidance of strangulation of tissue by suture material, and excellent aseptic technique will always be the first line of defense in the prevention of surgical infection. Certain aspects of the general host defense mechanism, such as neutrophil function, antibody production, and lymphocyte behavior are currently under intense investigation in surgical patients. There is good evidence that specific impairments exist which cause increased susceptibility in the host. In the near future, research of this type should prove valuable to clinicians.

THE NEWER ANTIBIOTICS

A certain number of patients, in spite of prevention and control measures, will continue to be infected with bacteria while in the hospital. We will now consider the antimicrobial agents which are on the horizon and should prove to be important additions to our armamentarium.

Cephazolin

This antibiotic belongs to the beta-lactam class and is in the sub-class cephalosporin. Its pharmacological advantages are that comparable doses produce higher serum levels which are maintained longer than those obtained with cephaloridine and cephalothin. Furthermore, the drug is less painful when given intramuscularly and is said to produce less phlebitis than cephalothin when given intravenously. This antibiotic is less nephrotoxic than cephaloridine but it is more nephrotoxic than cephalothin. This lessened nephrotoxicity when compared to cephaloridine is thought to be due to the fact that the cephazolin molecule is excreted unchanged in the urine. The antimicrobial spectrum of cephazolin is similar to that for cephalothin, namely, *Escherichia coli*, *Klebsiella* and *Proteus* species. One disadvantage of this antibiotic is that there is the possibility of renal toxicity when compared to cephalothin. Furthermore, its antimicrobial spectrum does not include *Pseudomonas*, *Enterobacter*, *Serratia*, *Hemophilus influenza*, and *Enterococcus*, and it is less effective against *Staphylococcus aureus* than cephalothin. In assessing its clinical usefulness, it would be appropriate to say that cephazolin should be used in place of cephaloridine in all instances but that it should not be used as a replacement for cephalothin when intravenous therapy with high doses of a cephalosporin is indicated.

Tobramycin

This new aminoglycoside antibiotic, which is now in advanced clinical trials, is one of several in the sub-class nebramycin which have a structure similar to kanamycin and gentamicin. It is only minimally inactivated by the acetylating enzyme of *Pseudomonas* which can totally inactivate gentamicin. Thus, its activity against *Pseudomonas* strains is 2 to 4 times greater than the activity of gentamicin. Tobramycin is much less nephrotoxic than kanamycin and, like gentamicin, it has synergistic activity against *Pseudomonas* when administered with carbenicillin. Tobramycin has certain disadvantages: like gentamicin it is moderately nephrotoxic, thus the dosage must be adjusted in patients with decreased renal function, and tobramycin is less active than gentamicin against *Enterobacter, Serratia, Proteus* and *Provedencia* species. Tobramycin has clinical usefulness in severe life-threatening infection due to *Pseudomonas* or other gram-negative rods which are sensitive to in *in vitro*but which are resistant to gentacicin. The dose of this antibiotic used to treat *Pseudomonas* infections can probably be reduced slightly when carbenicillin is used in conjunction with it. Tobramycin should not be used for empirical therapy of gram-negative sepsis because of its poor activity against some gram-negative rods until the organism is shown by *in vitro* testing to be sensitive to tobramycin. For the same reason, tobramycin should not be used for initial therapy with carbenicillin of septic patients with leukemia. In any event, because of the advantages of gentamicin and tobramycin when compared to kanamycin, the latter agent should probably no longer be used in the adult patient.

Clindamycin

Clindamycin phosphate, the parenteral form of clindamycin, is a member of the macrolide-like class of antibiotics and is distinguished from clindamycin by its 7-chloro substitution. This substitution gives it the advantage over lincomycin of being at least 5 times as active against anaerobic bacteria, especially the gram-negative anaerobic rod *Bacteroides fragilis.* Its spectrum also includes the gram-positive cocci— *Staphylococcus aureus,* beta-hemolytic streptococcus and the pneumococci, and it is also active against mycoplasma species. Although clindamycin phosphate has a wide spectrum of activity, it has certain disadvantages. This antibiotic is not effective against all anaerobic bacteria. Some strains of *Bacteroides fragilis,* most strains of *Fusobacterium varium,* and many strains of clostridia are not susceptible to its activity. This drug is also totally ineffective against enterococci and the common facultative gram-negative bacilli. Although side effects in the human have been minimal it is reported that severe colitis may occur. This toxicity does not appear to be dose related and occurs at a relative low frequency of 1 in 40-100,000, especially in middle-aged to older-aged women. Whether or not this drug-associated toxicity is reversible after the drug is withdrawn is still not clear. Clindamycin phosphate is clinically useful in human infections due to anaerobic bacteria, especially *Bacteroides fragilis.* The indications would include septic abortion, pelvic abscess, and postoperative and post-traumatic intra-abdominal abscesses. It is not indicated as the first line of treatment in synergistic anaerobic infections such as putrid lung abscesses or in small bowel overgrowth syndromes. This antibiotic is an excellent alternative for the treatment of infections due to *Staphylococcus aureus* in patients wih a history of significant penicillin allergy but it is probably not indicated in those patients who have endocarditis or meningitis due to this organism. Because of the wealth of satisfactory clinical experience in treating *Staphylococcus aureus* infections with antistaphylococcal penicillins, clindamycin phosphate should not be used as a substitute for these agents in patients who are not allergic to penicillin. For the same reason,

clindamycin phosphate should not replace penicillin in the therapy of pneumococcal disease.

Sulfamethoxazole-Trimethoprim

This newly marketed antibiotic combination has been used for several years for the therapy of clinical infections in countries other than the United States. Both agents in this combination drug are folic acid antagonists. Sulfamethoxazole is a para-aminobenzoic acid antagonist not unlike other sulfa derivatives. Trimethoprim is a dihydrofolate reductase inhibitor which is similar to methotrexate. Although this antibiotic combination has a limited clinical usefulness at this time, it is considered here since its mechanism of action is unique and demonstrates a new dimension in antimicrobial therapy.

This combination of antibiotics takes advantage of the fact that in the bacteria tetrahydrofolic acid must be synthesized since these microorganisms lack the ability to absorb this important vitamin from their surroundings. Thus, sulfamethoxazole which is a competitive inhibitor for para-aminobenzoic acid inhibits the biosynthesis from pteridine, para-aminobenzoic acid, and glutamate which yields dihydrofolic acid. By inhibiting the production of dihydrofolic acid, sulfamethoxazole inhibits the synthesis in bacteria of purine and pyrimidine nucleotides and subsequently nucleic acids. This action of sulfamethoxazole has no effect on the human cells since they do not have the biosynthetic pathway for dihydrofolic acid and man is able to absorb folic acid and dihydrofolic acid from his diet.

Both *in vitro* and *in vivo*, bacteria are able to become resistant to the action of sulfamethoxazole rather readily. This is overcome by this unique combination of antibiotics since trimethoprim inhibits dihydrofolate reductase which is responsible for the reduction of dihydrofolate acid to tetrahydrofolic acid in the bacteria. Although this same biosynthetic pathway, that is, the reduction of dihydrofolic acid by dihydrofolic acid reductase is operative and important in man, the action of trimethoprim on this reducing enzyme in *bacteria* is 100,000 times greater than the enzyme which reduces dihydrofolic acid to tetrahydrofolic acid in man. Thus, the combination of sulfacethoxazole and trimethoprim is a dual inhibitor of folic acid synthesis in the bacteria while it has little effect on folic acid metabolism in man.

A practical advantage of this combination of antibiotics is that *in vitro*, one can obtain marked synergism against urinary tract pathogens, such as *E. coli, Klebsiella, Enterobacter, Proteus mirabilis*, and indol-positive *Proteus* species. Also, this combination shows special effectiveness against the typhoid bacillus and *Nocardia*. Its pharmacologic advantage is that any bone marrow depression which might occur in folic acid depleted individuals can be circumvented by the simultaneous administration of folinic acid. Disadvantages of this antibiotic combination are that it is ineffective against *Pseudomonas*, it is more toxic than sulfonamides alone, ampicillin, or cephalexin, and, is approximately 10 times more expensive than sulfonamides. In conclusion then, the combination of sulfamethoxzole-trimethoprim is probably a significant addition to our antibiotic armamentarium, especially since it exemplifies a new approach for future development of antibiotics. In the United States, this combination of antibiotics is limited to the treatment of chronic urinary tract infections but judging from the experience gathered in other countries, it is probable that this agent will be approved for the treatment of other infections in the foreseeable future.

Very efficient and potent antimicrobial agents have been discussed here. It is important that these agents be used properly in the right clinical circumstances if we are to have the benefit of their advantages for a long time in the future.

INFECTION SURVEILLANCE IN THE HOSPITAL

Traditionally, the hospital infection control committee has been the orphan-child of all committees. It hunted down Staphylococcal carriers in the operating room, fought to eliminate them, usually lost the fight, and there, more or less, its duties ended. Today, partly because of the reasons alluded to in the introduction, partly because of increasing governmental and legal interest, as well as stricter requirements by accreditation bodies, there is a need for change.

The primary role of the committee is the prompt and effective isolation of patients with infections and investigation of possible epidemics of wound infection, and to do this, a good reporting system is of paramount importance. More and more this role is being assumed by full-time individuals such as infection surveillance nurses, who combine this duty with a teaching role. A secondary role is the collection and publication, for the benefit of all staff, of solid infection data showing trends and pinpointing danger areas, with the objective of keeping the infection rate within the hospital at an acceptable (not to be confused with desirable) level, currently less than 5 per cent of all admissions and less than 1 per cent of clean surgical wounds. The maintenance of an ongoing surveillance program of all areas of concern such as the operating room, housekeeping, water supplies, anesthesia equipment, urinary catheter care and a myriad of others also becomes the responsibility of the committee.

To be effective, and not just a paper organization, the committee needs the full executive support of the hospital administraion, as well as that of the professional staff. It should be led by a physician who is genuinely interested in the problem and to whom the committee is not just an extra chore. Membership in the committee must be representative of all areas of the hospital, including nursing, inhalation therapy, housekeeping, and engineering. Expert microbiological support is essential.

In summary, we need to keep observing sound surgical principles, use antibiotics correctly and judiciously, and be interested in the problems of infection surveillance if we are to offer our patients the best chance of avoiding the complication so heartbreaking both to them and to ourselves, that of surgical infection.

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THE CELL SEPARATOR

ANTHONY M. MOSER, M. D.*
ALBERT CANNON, M. D.*

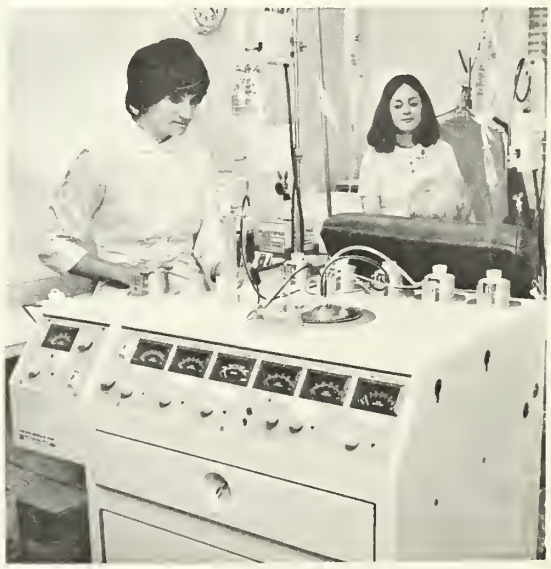
The usual treatment for acute leukemia involves the administration of drugs which are toxic to normal bone marrow elements. Granulocytopenia, thrombocytopenia, and anemia are frequent concomitants of anti-leukemic therapy. With advances in blood bank technology, anemia can be adequately treated, and thrombocytopenia can be corrected by platelet transfusions. Granulocytopenia presents greater problems. Plasmapheresis is a method of gathering granulocytes which is a system of intermittent blood collection and return to the donor, and precludes the processing of large volumes of blood. To evaluate the efficacy of leucocyte transfusions large numbers of leucocytes are required, and plasmapheresis is not a practical technique for this purpose.

A recent improvement in leucocyte collection has been provided by the development of a continuous flow blood cell separator. The instrument was developed as a result of a joint effort by investigators at the National Cancer Institute and the Systems Development Division of the International Business Machines Corporation. Two models are currently available—the NCI-IBN blood cell separator and the Aminco Celltrifuge (American Instrument Company).

The cell separator processes large quantities of whole blood in a sterile, closed continuous flow system separating various components (leucocytes, plasma, red blood cells). The desired components can be collected and the remaining components returned to the donor. An Aminco Celltrifuge has recently begun operation at the Medical University Hospital. Efforts have been undertaken to evaluate its application to Clinical Oncology.

OPERATION OF THE CELLTRIFUGE

In a closed sterile system an uninterrupted flow of blood is kept at a constant gravitational force while various components of the blood are separated and collected or returned to the donor. With the constant gravitational force and continuous flow it is possible to separate elements of intermediate density (leucocytes and platelets) as well as elements of similar density (red blood cells and plasma). Granulocytes, lymphocytes, red



Operation of the cell separator requires a trained medical technician and a registered nurse.

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cells, and plasma or platelet rich plasma can be separated and collected or returned to the donor.

As blood enters the system, the centrifuge is adjusted to the desired speed. The whole blood enters the centrifuge bowl through the center of a rotating seal and flows downward through a narrow diameter innercore down to the bottom of the bowl. The blood is moved by centrifugal force to the periphery of the bowl. As the blood passes up the side of the bowl it separates into three distinct bands, the red cells outermost, the plasma at the center, and the small buffy coat containing leucocytes between these two. Platelets are distributed about equally in all bands but may be concentrated in either the red cell layer or the plasma layer by varying the centrifugation speed. The collecting ports are arranged in three concentric rings in the bowl cover. Paristaltic pumps move the separated components from the collection ports to the collecting bags or back to the donor. The clear plastic bowl cover allows the operator to observe the separation of the components and make necessary adjustments of centrifugation speed.

PROCEDURE

The machine is primed with acid-citrate dextrose solution (ACD) to eliminate all the air from the system. The volume of the centrifuge bowl and tubing is approximately 150 cc's and at the end of the operation all but 50 to 60 cc's of blood is returned to the donor.

The donor is connected to the system by right and left anti-cubital venous punctures (14 to 15 gauge) and given 2,000 units of heparin IV immediately. An ACD drip of 1 ml. per 20 ml.'s of whole blood is added to the in-flow line. Heparin saline is also added at the rate of 15 units per minute. Flow rate of the blood is 40 to 60 cc's per minute. The procedure generally takes 3½ to 4 hours with the donor having received 300 to 400 cc's of ACD and 4,000 to 5,000 units of heparin.

CLINICAL USES

The primary use of the cell separator is in leukapheresis, the separation of leucocytes from donors. In general, 25 to 35 per cent recovery can be expected with a granulocyte mass consisting of 0.8 to 1.6 X 10^{10} granulocytes in a volume of 250 to 300 ml.[1]

Initial use of the cell separator at the Medical University Hospital will be in granulocyte collection from normal donors to provide granulocyte transfusions to leukemic patients who have been made leucopenic by therapy and who have evidence of active infection.

Evidence of the effectiveness of leucocyte transfusion in combatting sepsis is incomplete, but initial reports are favorable with indications that lysis of fever does occur provided adequate numbers of granulocytes are infused.[7] What constitues an adequate number is still unresolved.

Recent studies on survival of the transfused leucocytes indicate that survival is related to HL-A (Human Leukocyte locus-A) similarity,[7] so that family members, preferably siblings, are the best donors. If the donor and recipient are identical twins, the mean recovery of transfused granulocytes is 43 per cent. Recovery falls to 27 per cent when siblings are used and 11.8 per cent when parents are used. Mean recovery rate from an unrelated donor is 5 per cent although it has been stated that lysis of fever occurs following non-related donor transfusions to leucopenic patients. Hematological and immunological studies are performed prior to and during leukapheresis on the donors and recipients. A suitable donor is one who is of the same ABO and Rh type as the patient and against whose leucocytes the patient does not have pre-formed antibodies.

Studies are being performed on the possible use of the cell separator to initially treat acute or chronic leukemia patients by removing large numbers of leucocytes from peripheral blood and possibly post-

poning the use of chemotherapeutic agents.[5]

Plasma exchange can be performed rapidly and safely with the cell separator.[9] Thus it may be useful in the treatment of patients with paraproteinemias, hepatic coma, or patients with circulating antibodies. A recent report described a classic hemophiliac who sustained a subdural hematoma and who had developed Factor VIII antibodies. Plasma exchange was performed with a cell separator; the subdural hematomas was evacuated and the patient survived.[2]

PRELIMINARY EXPERIENCE

In the short time that the cell separator has been in operation at the Medical University Hospital we have had experience in providing granulocytes for eight leukopenic, septic children involving a total of forty leukaphereses. The feasibility of continuing to use the cell separator has been demonstrated to our satisfaction.

SUMMARY

The cell separator has been demonstrated to provide a rapid, safe method of collection of large numbers of granulocytes from a single donor. The clinical effect of granulocyte transfusion appears favorable although much investigation remains to be done. Through radioactive chromium labelled leucocytes the fate and function of leucocytes transfused into a recipient will be studied. The cell separator will provide what is hoped to be a useful adjunct in the treatment of acute leukemia.

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Maybe the patient's self-diagnosis is right. He could have hay fever. But that bright red nasal mucosa, along with the thick discharge and excoriation around the nares, strongly suggests that the main problem is a cold. Hay fever or another form of allergic rhinitis may or may not be an underlying factor.

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CONTRAINDICATIONS: Hypersensitivity to antihistamines of the ethanolamine class. Dimetapp Extentabs are contraindicated during pregnancy and in children under 12 years of age. Because of its drying and thickening effect on the lower respiratory secretions, Dimetapp is not recommended in the treatment of bronchial asthma. Also, Dimetapp Extentabs are contraindicated in concurrent MAO inhibitor therapy.

WARNINGS: *Use in children:* In infants

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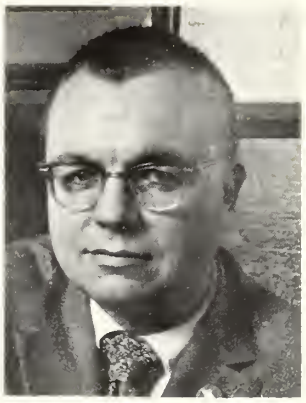
Phenaphen with Codeine No. 2, 3, or 4 contains: Phenobarbital (¼ gr.), 16.2 mg. (warning: may be habit forming); Aspirin (2½ gr.), 162.0 mg.; Phenacetin (3 gr.), 194.0 mg.; Codeine phosphate, ¼ gr. (No. 2), ½ gr. (No. 3) or 1 gr. (No. 4) (warning: may be habit forming).

Indications: Provides relief in severer grades of pain, on low codeine dosage, with minimal possibility of side effects. Its use frequently makes unnecessary the use of addicting narcotics. **Contraindications:** Hypersensitivity to any of the components. **Precautions:** As with all phenacetin-containing products, excessive or prolonged use should be avoided. **Side effects:** Side effects are uncommon, although nausea, constipation and drowsiness may occur. **Dosage:** Phenaphen No. 2 and No. 3—1 or 2 capsules every 3 to 4 hours as needed; Phenaphen No. 4—1 capsule every 3 to 4 hours as needed. For further details see product literature.

(III) Phenaphen with Codeine is now classified in Schedule III, Controlled Substances Act of 1970. Available on written or oral prescription and may be refilled 5 times within 6 months, unless restricted by state law.

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President's Pages



Eau de Vie

There is an old Irish legend that every clan living on the luxuriant green banks of the Liffey carried some special mark of God's favor. With the O'Donnells it was hair—the women and men of that tribe had yards of silken gold and auburn falling around their shoulders. The Flanagans were given a rich voice and were the masters of speech and song. The Desmonds had wonderful muscles. The Tyrones were marvelous at games of leaping and running and were said to have the bearing of kings. The McCarthys were given the sight of eagles. Every tribe had something. But there was also a penalty attached to the possession of these gifts, and the legend ran that the Liffey clansmen were always stricken in the area of which they were most proud. The O'Donnells went bald young. Desmond muscle early turned to fat. The Tyrones developed arthritis. The McCarthys developed cataracts. The inspiring ballads of the Flanagans became like a frog's croak.

South Carolina has long been proud of its soft pure water. When you travel out of state, all of the water tastes funny. The purity of the water has long been an attraction for the textile industry as well as many other industries. Your wife's household laundry comes out soft and fluffy with little effort. The plumbing in your house lasts at least three times as long as in many parts of the country.

In the past several years there has been some mounting evidence that our soft pure water also bears the curse of the Liffey. There is some suggestion that soft water may help cause an increased incidence of renal calculi. In many areas of the state soft pure water has been deficient or totally lacking in flouride, a substance necessary for the elimination of dental caries and apparently an important factor in lowering the incidence of osteoporosis. However, the most important factor to be considered by studies in recent years is the evidence that areas with soft water may have a considerably greater incidence of cardiovascular disease than hard water areas. A number of reports, including the latest article by Schraeder and Kramer in the Archives of Environmental Health of June, 1974, definitely establishes a statistical correlation between death rates from heart disease and the nature of water habitually consumed by the residents in this area. In spite of the mobility of our population and other socioeconomic factors, some substance in hard water appears to protect partly against cardiovascular death or some substance missing in soft water or added to it because of its nature appears to promote cardiovascular disease death rates. This "water factor" was strong enough to show itself when municipal waters were artificially softened.

An *Ad hoc* study committee convened by the South Carolina Heart Association, the Bureau of Adult Health Services, and the South Carolina Department of Health and Environmental Control met in July, 1974, to study these problems. Medical and allied health professional representatives of the state, district, and local health departments and heart association components discussed these multifaceted problems with the objective of defining the problem more clearly and attempting to find some answers. Mr. William D. Workman, Jr., the Editorial Analyst of the Columbia *State*, has been quite interested in this problem for several months and has provided helpful publicity on this important matter. At the last meeting of your Executive Council, there was unanimous approval of your Association supporting and cooperating with all these agencies in any way possible to get some definite answers to a perplexing question. Although soft water as a disease factor may be quite important, it must be correlated in its context with other more widely acknowledged factors such as obesity, saturated fat intake, lack of exercise, etc.

Donald G. Kilgore, Jr., M.D., President
South Carolina Medical Association



50 YEARS AGO

October, 1924

The subject of mutual relations, benefits and long-standing regard of the state medical association and the Medical College of the State of South Carolina was the leading editorial. The impending 100th anniversary of the College was announced and members were urged to participate. A number of historical articles were included in this issue of the *Journal*.

Editorials

The Suburban Syndrome

In a previous editorial, "Diseases of Ecological Progress,"[1] we suggested a new classification of diseases. It did not catch on like wildfire. We make another suggestion, this time not a whole new class of disease, but a syndrome, The Suburban Syndrome—not because we think medicine needs more names but because the disease causing "The Suburban Syndrome" is difficult to diagnose. Certain characteristics of the disease which might justify the appellation "The Suburban Syndrome" could induce the physician to consider histoplasmosis and assist in diagnosis. The basis for naming progressive disseminated histoplasmosis "The Suburban Syndrome" is firmly established in Mims Mobley's article, "Disseminated Histoplasmosis," where he presents 3 cases that occurred in Greenwood and thoroughly reviews the disease.

Mobley points out that the H. capsulatum predominantly, if not only, enters the body through the lungs. Further, he states that new families moving into endemic areas are especially susceptible to the disease, a good description of suburbanites. Art DiSalvo of South Carolina DHEC found that the burning of cane brakes and the fresh turning of settled earth can get the pathogenic organisms floating freely and abundantly in the air. These measures are often involved in suburban construction. Thus suburbs bring susceptible people into an infectious environment—in the suburbs, hence "The Suburban Syndrome." Maybe this thought will lead you to a correct diagnosis sometime.

As a Vanderbilt Medical School student of the early fifties, I could not close the discussion of Histoplasmosis without mention of Amos Christie, then Professor of Pediatrics and father of eastern U.S. recognition of histoplasmosis—and an all around great man.

EEK

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Current Editorial Policy of JSCMA

The editorial policy of JSCMA necessarily changes from time to time, chiefly because the amount of material received for publication varies. Last year we were forced to publish nearly everything submitted almost before it arrived. Thanks to more interest in the Journal and increased productivity by S. C. physicians, there is now a large reserve of material and we must be more selective in what we publish. For this reason, we thought it would be important to explain the types of articles that we prefer for publication in JSCMA, especially since this issue contains good examples of the three types that get high priority.

1. Articles that present medical information of interest to a wide variety of physicians, generalists and specialists, and not of interest to a limited audience only are desirable. The paper on surgical infection in this issue should interest all surgeons, but also contains a very up-to-date discussion of various new antibiotics which should be helpful to all physicians. Of added value is the section advocating very active infection surveillance in hos-

pitals, and should be important to all physicians and also nurses and other hospital personnel.

2. Articles dealing with diseases new to South Carolina or of specially high incidence in South Carolina certainly should be brought to the attention of South Carolina physicians through the state journal. The article on the recently recognized endemy of histoplasmosis in Greenwood County is a paper of this type that should receive priority in JSCMA.

3. The presence of new facilities, explanation of new state regulations, discussions of controversial or new positions, or activities in the Association or in State government should be presented to members of SCMA as rapidly as possible. The paper on the State Alcohol and Drug Addiction Treatment Center certainly stands in this category.

The preferred length is about 15 double-spaced typewritten pages. Both the article on histoplasmosis and the article on surgical infections exceed this length but were of sufficient general interest to overcome this deficit.

Please use these factors as guides in preparing papers for the JSCMA but do not let them discourage you from submitting any material that you think would be of interest to South Carolina physicians. The more selection that is available, the better the Journal. Keep the good stuff coming!!

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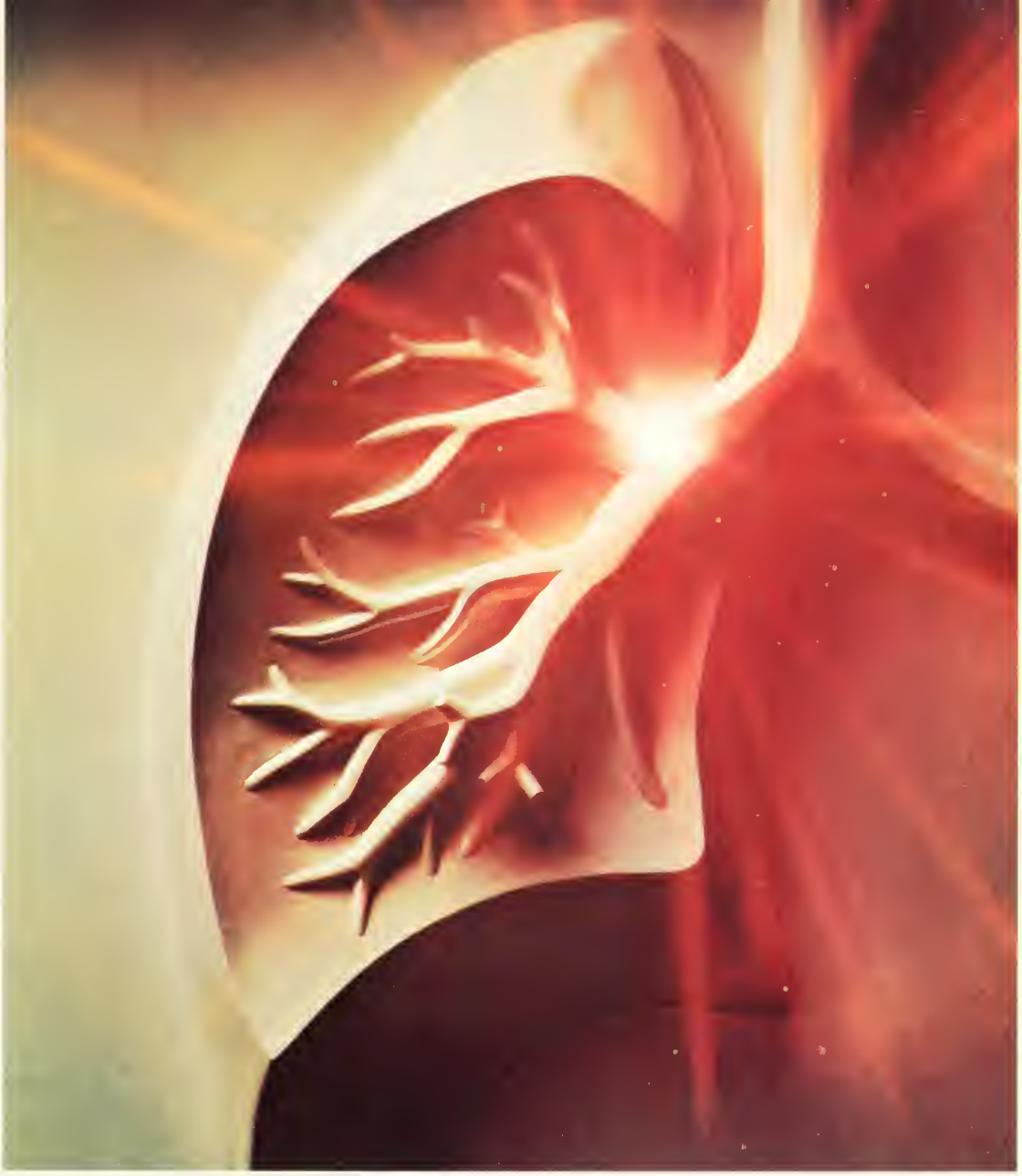
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CONTRAINDICATIONS. Hypersensitivity to any of the tetracyclines.
WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**
Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)
Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.
Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)
All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in tibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.
Tetracyclines are present in milk of lactating women taking tetracyclines.
To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.
Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.
PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.
In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.
Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.
In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).
Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.
Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.
ADVERSE REACTIONS: Gastrointestinal (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monifial overgrowth) in the anogenital region.
Skin: maculopapular and erythematous rashes, exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).
Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**)
Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.
Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.
Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.
Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur.
USUAL DOSAGE: Adults—600 mg daily, divided into two or four equally spaced doses. More severe infections: an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, "Rondomycin" (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.
For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of "Rondomycin" (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.
Eaton Agent pneumonia: 900 mg daily for six days.
Children—3 to 6 mg/lb/day divided into two to four equally spaced doses.
Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.
Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.
In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.
In streptococcal infections, a therapeutic dose should be given for at least 10 days.
SUPPLIED: "Rondomycin" (methacycline HCl): 150 mg and 300 mg capsules, syrup containing 75 mg/5 cc methacycline HCl.

Before prescribing, consult package circular or latest PDR information.

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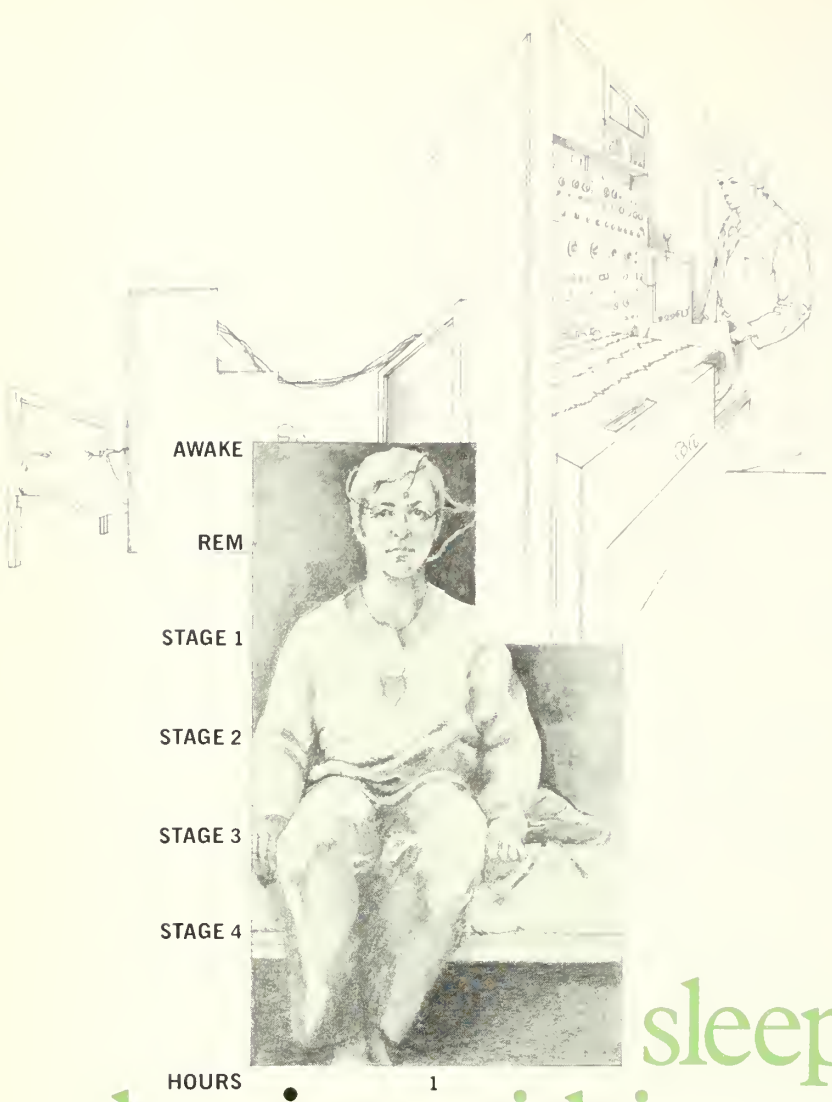
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(flurazepam HCl)

proved by a 22-night clinical study of insomnia patients in the sleep research laboratory and at home[1]

Three insomnia patients selected for difficulty falling asleep were administered Dalmane (flurazepam HCl) 30 mg for 14 consecutive nights. Placebo was given for four nights prior to and four nights after Dalmane. Physiologic tracings on Dalmane nights 1-3 showed sleep induction time averaged 13.90 minutes; on Dalmane nights 12-14, 18.80 minutes. Combined average for the 6 monitored drug nights was 16.35 minutes.[1]

Average Time Required to Fall Asleep (4 Studies, 16 Subjects[2-5])



Baseline (before **Dalmane**)

Dalmane (flurazepam HCl) 30 mg

confirmed by clinical studies in four geographically separated sleep research laboratories[2-5]

Using a 14-night protocol involving eight insomniac and eight normal subjects, four studies confirmed the sleep-inducing effectiveness of Dalmane (flurazepam HCl) and the reproducibility of this response. On average, one 30-mg capsule induced sleep within 17 minutes. In all these studies, Dalmane induced sleep rapidly, reduced nighttime awakenings, and provided 7 to 8 hours of sleep without repeating dosage[2-5]

Dalmane (flurazepam HCl) induces and maintains sleep, with relative safety

Dalmane is generally well tolerated; morning "hang-over" has been relatively infrequent. While dizziness, drowsiness, lightheadedness and the like have been noted most often, particularly in the elderly and debilitated, physicians should be aware of the possibility of more serious reactions, as noted below.

Before prescribing Dalmane (flurazepam HCl), please consult Complete Product Information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; and in acute or chronic medical situations requiring restful sleep. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended.
Contraindications: Known hypersensitivity to flurazepam HCl.
Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Use in women who are or may become pregnant only when potential benefits have been weighed against possible hazards. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage.
Precautions: In elderly and debilitated, initial dosage should be limited to 15 mg to preclude oversedation, dizziness and/or ataxia. If combined with other drugs having hypnotic or CNS-depressant effects, consider potential additive effects. Employ usual precautions in patients who are severely depressed, or with latent depression or suicidal tendencies. Periodic blood counts and liver and kidney function tests are advised during repeated therapy. Observe usual precautions in presence of impaired renal or hepatic function.
Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported were headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins and alkaline phosphatase. Paradoxical reactions, *e.g.*, excitement, stimulation and hyperactivity, have also been reported in rare instances.
Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg initially until response is determined.
Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.

when restful sleep is indicated

Dalmane®
(flurazepam HCl)

One 30-mg capsule *h.s.* — usual adult dosage (15 mg may suffice in some patients).
One 15-mg capsule *h.s.* — initial dosage for elderly or debilitated patients.

- induces sleep within 17 minutes, on average
- reduces nighttime awakenings
- sustains sleep 7 to 8 hours, on average, without repeating dosage

REFERENCES: 1. Kales A, *et al*: *Arch Gen Psychiatry* 23:226-232, Sep 1970
2. Karacan I, Williams RL, Smith JR: The sleep laboratory in the investigation of sleep and sleep disturbances. Scientific exhibit at the 124th annual meeting of the American Psychiatric Association, Washington DC, May 3-7, 1971
3. Frost JD Jr: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ
4. Vogel GW: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ
5. Dement WC: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ

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Before prescribing, see complete prescribing information in SK&F literature or *PDR*. The following is a brief summary.

Indications: Edema associated with congestive heart failure, cirrhosis of the liver, the nephrotic syndrome; steroid-induced and idiopathic edema; edema resistant to other diuretic therapy. Also, mild to moderate hypertension.

Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired. Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (>5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. Accordingly, **check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide', check serum potassium frequently**—both can cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe patients on 'Dyazide' regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, descreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles and Single Unit Packages of 100 capsules.

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No potassium supplements
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Studies have demonstrated that two prime reasons patients drop out of hypertensive therapy are: (1) the patient failed to understand directions, and (2) the regimen was overly complicated.* Dosage is simple with 'Dyazide', easily understood, once or twice daily, depending on response. There's no need to complicate the regimen with potassium supplements or unwieldy potassium-rich diets.

*E.D. Freis: The Modern Management of Hypertension, V.A. Information Bulletin, 11-35.

TO KEEP BLOOD PRESSURE DOWN AND KEEP POTASSIUM LEVELS UP

Letter to the Editor

Dear Ed:

This is to congratulate you upon the speed with which you got my report on the AMA meeting in June published. I really think the decrease in lag time is outstanding.

If it is possible I would like to ask you to make two corrections in the article. The third sentence of the second paragraph, on page 271, should read "Present and working, among others, were your delegates, your alternates, your executive secretary and your president, plus Nancy and Margaret Hawk, Polly Weston, Lib Peeples, Ken Owens, Dessie Gilland, Mac Ball, Harold Jervey, and John Schofield. A group of students from MUSC, led by Al Jones also helped every day." Actually our vice president was not present and Ken Owens, who used to be our vice president was there working hard all the time. We are also very anxious to give the students from MUSC credit for their great help.

On page 273, you will note that the paragraphs omit a number 8. This is simply an error in numbering and makes no difference. However, the paragraph that is numbered 12 should read as follows: "There were three resolutions dealing with the FDA's role in determining the safety and efficacy of drugs. A South Carolina resolution sought repeal of the Kefauver-Harris Amendment to PL 87-781 which enables the FDA to require efficacy as well as safety. The Committee changed the request for repeal of this power to a request that the FDA consider the view of practicing physicians before removing frequently prescribed drugs from the market, the typical milk-toast approach to federal issues of vital importance, but fortunately the request for repeal was replaced on the floor through the initiative of Pennsylvania." I believe that this is an important correction. You may have noticed in the AMA News a few issues ago that there was quite a prominent story in which an FDA official had expressed dismay with this resolution and hoped that the delegates did not really mean to remove the FDA's authority to require efficacy. An official AMA spokesman replied that this was not the intention at all; that the AMA simply wished to deliver the message that the FDA ought to consult practicing physicians. This is of course a complete misrepresentation of what was the actual intention of the House, which was to secure repeal of the authority of the FDA to require efficacy. The answer of the AMA official is simply another example of the sabotage of the House of Delegates and of the AMA membership at large by the AMA bureaucracy.

I miss seeing all of you more than you might think.

With kindest regards, I remain

Yours very truly,

Thomas Parker, M. D.

CORRECTION

Re: McGowan, H. C. and Kahn, M. O.: Traumatic abdominal aorto-caval fistula, J S Carolina Med Ass 70:257, August 1974.

In the original article, Figure 2 was printed upside down. Also, Dr. McGowan pointed out that by putting Figure 1 and Figure 2 side by side, the dramatic reduction in the size of the heart was more apparent, and a surgically correctable cause of congestive heart failure demonstrated.



Figure 1. Chest x-ray on date of admission (2-7-71) demonstrating enlarged cardiac silhouette.



Figure 2. Chest x-ray obtained 3-10-71, 19 days following closure of fistula demonstrating diminution in cardiac size.

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CONTINUING EDUCATION

DISEASES OF THE LIVER—Diagnostic approach to liver disease and jaundice, including the clinical examination, laboratory tests, heptaic scintiscan, etc., plus discussion of acute and chronic liver disease. Panel discussions will conclude each session. Location: Playboy Plaza Hotel, Miami Beach, Fla. Date: Nov. 21-23. Fee: $150; physicians in training $75; nurses $50. Contact: Leon Schiff, M.D., Department of Medicine, University of Miami School of Medicine, P. O. Box 520875 Biscayne Annex, Miami FL 33152.

RED ALERT is the title of a two-day Regional Institute on Trauma to be held Nov. 1-2, 1974, at Mills-Hyatt House, Charleston SC. The Assoc of Operating Room Nurses, Charleston Chapter I is presenting the Institute which is sponsored by AORN National Committee on Education. Topics include: Massive Burn, OR Nursing, Air Bed Care, Trauma Evaluation, EMS Program. Contact: Registration Chairman, Donna O'Rourke RN, 1334 Hampshire Rd, Charleston SC 29412.

MEETINGS

FAMILY PHYSICIANS—The Twenty-Sixth Annual Meeting of the S. C. Academy of Family Physicians will be held Nov. 6-8, Mills Hyatt House, Charleston SC.

State Alcohol and Drug Addiction Treatment Center

Construction Problems Cause Continued Delay in Opening

COLUMBIA — A series of construction problems have plagued the work toward completion of the 186-bed Alcohol and Drug Addiction Treatment Center and its opening and operational date has now been pushed forward to January, 1975, by the South Carolina Department of Mental Health.

The Center has been in the construction phase for the past two years and was originally scheduled for operational status at the beginning of this year.

Designed especially for the treatment of alcohol and drug addicts, the center has been on the drawing boards since July 2, 1969, when legislation was passed creating a division of Alcohol and Drug Addictions within the Department "which shall have primary responsibility in the State for treatment of alcohol and drug addicts." (Section 5, Act 863.)

An extensive study of other addiction programs existing on a state and national level formed the ground work for South Carolina's approach to treatment of addictions. (A pilot project of the Alcohol and Drug Addiction Center was opened at Crafts-Farrow State Hospital on November 29, 1971.)

The overall plan for a statewide addiction treatment program as well as the architectural concept was the result of this extensive study carried out by the Department of Mental Health with input from the Commission on Alcoholism, Department of Vocational Rehabilitation, State Board of Health and Environmental Control, Department of Social Services, Department of Corrections, as well as other state and local governmental and private agencies involved in addictions treatment.

Funds were allocated and construction of the new facility began December, 1972. Designed in the village concept, the center is comprised of 22 buildings, each with a specific purpose. The architectural concept behind the design is to provide a simulated residential community that generally would be accepted as normal to the patient.

The planning responsibility for this facility was shared by an interdisciplinary team of professionals from the SCDMH, Dr. William S. Hall, the Community Mental Health Centers, and the Health Care Facility Planning and Design Studio of Clemson University under the direction of Professor George C. Means.

The Alcohol and Drug Addictions Center of SCDMH is unique in that it combines alcohol and drug abusers in the same program. This approach focuses on the individual rather than the substance, and the first step in treatment is helping the patient identify and begin processing the problems which led him to devise a chemical solution for himself.

A criminal justice unit has been established to act as a liaison between patients in the Center and law enforcement agencies. Approximately 23 percent of all residents admitted to the facility come from a legal referral source, such a correction agency or a law enforcement agency, and some five percent of total admissions are received by judicial papers. Better treatment plans can be designed if staff know the criminal charges and pressures of the patients and can help the patients understand the charges. A staff member who is also a probationary officer works full time in the center.

A special committee has been established to assess and implement services to the younger adolescents, of ages 13-16,

All of these mammals, except one, can synthesize vitamin C



Woman (man) cannot.

Human beings can neither synthesize vitamin C nor store most of the water soluble vitamins. They should be replenished continuously.

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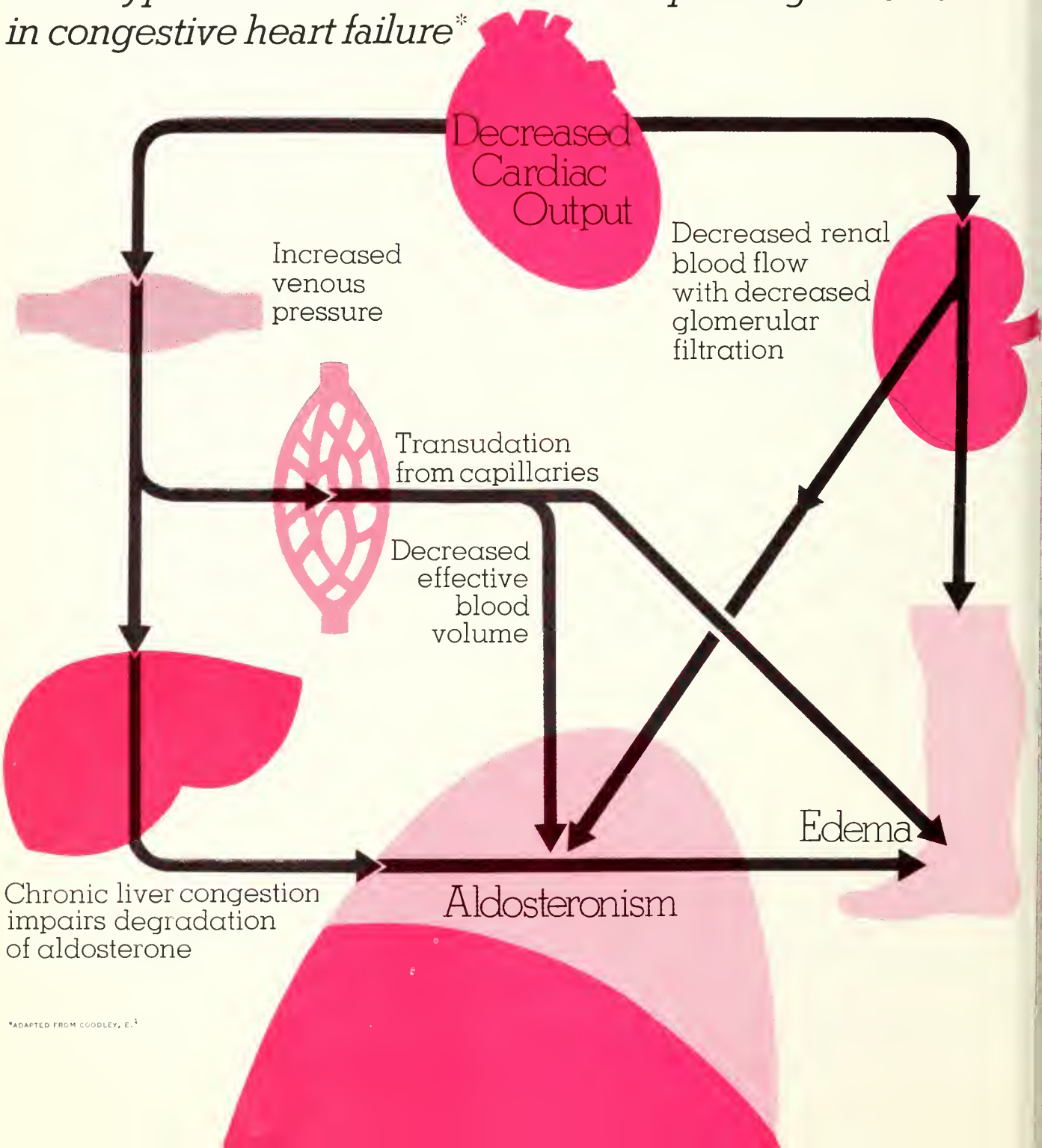
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In congestive heart failure...

secondary aldosteronism

*How hyperaldosteronism leads to and prolongs edema in congestive heart failure**



*ADAPTED FROM COODLEY, E.[1]

is a primary factor

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1. As the only diuretic
- Often sufficient alone.
- Produces gradual, sustained diuresis by blocking aldosterone action in the distal renal tubule.
- Avoids potassium loss.

2. As the basic daily diuretic with an "add-on" alternate-day-diuretic ("A.D.D." schedule)
- Can be administered daily as basic therapy with the additional agent (furosemide or ethacrynic acid) given every second or third day.
- Aldactone plus "A.D.D." schedule minimizes potassium deficiency and potentiates effect of "add-on" diuretic.[2]
- Avoids acute volume depletion and aldosterone rebound.[2]

3. As a daily diuretic in combination with a daily dose of a thiazide
- Permits daily additive diuretic effect while maintaining potassium balance.

Indications—Essential hypertension; edema or ascites of congestive heart failure, cirrhosis of the liver and the nephrotic syndrome, idiopathic edema. Some patients with malignant effusions may benefit from Aldactone (spironolactone), particularly when given with a thiazide diuretic.

Contraindications—Acute renal insufficiency, rapidly progressing impairment of renal function, anuria and hyperkalemia.

Warnings—Potassium supplementation may cause hyperkalemia and is not indicated unless a glucocorticoid is also given. Discontinue potassium supplementation if hyperkalemia develops. **Usage of any drug in women of childbearing age requires that the potential benefits of the drug be weighed against its possible hazards to the mother and fetus.**

Precautions—Patients should be checked carefully since electrolyte imbalance may occur. Although usually insignificant, hyperkalemia may be serious when renal impairment exists; deaths have occurred. Hyponatremia, manifested by dryness of the mouth, thirst, lethargy and drowsiness, together with a low serum sodium may be caused or aggravated, especially when Aldactone is combined with other diuretics. Elevation of BUN may occur, especially when pretreatment hyperazotemia exists. Mild acidosis may occur. Reduce the dosage of other antihypertensive drugs, particularly the ganglionic blocking agents, by at least 50 percent when adding Aldactone since it may potentiate their action.

Adverse Reactions—Drowsiness, lethargy, headache, diarrhea and other gastrointestinal symptoms, maculopapular or erythematous cutaneous eruptions, urticaria, mental confusion, drug fever, ataxia, gynecomastia, inability to achieve or maintain erection, mild androgenic effects, including hirsutism, irregular menses and deepening voice. Adverse reactions are infrequent and usually reversible.

Dosage and Administration—For **essential hypertension** in **adults** the daily dosage is 50 to 100 mg. in divided doses. Aldactone may be combined with a thiazide diuretic if necessary. Continue treatment for two weeks or longer since an adequate response may not occur sooner. Adjust subsequent dosage according to response of patient.

For **edema, ascites** or **effusions** in **adults** initial daily dosage is 100 mg. in divided doses. Continue medication for at least five days to determine diuretic response; add a thiazide or organic mercurial if adequate diuretic response has not occurred. Aldactone dosage should not be changed when other therapy is added. A daily dosage of Aldactone considerably greater than 75 mg. may be given if necessary.

A glucocorticoid, such as 15 to 20 mg. of prednisone daily, may be desirable for patients with extremely resistant edema which does not respond adequately to Aldactone and a conventional diuretic. Observe the usual precautions applicable to glucocorticoid therapy; supplemental potassium will usually be necessary. Such patients frequently have an associated hyponatremia—restriction of fluid intake to 1 liter per day or administration of mannitol or urea may be necessary (these measures are contraindicated in patients with uremia or severely impaired renal function). Mannitol is contraindicated in patients with congestive heart failure, and urea is contraindicated with a history or signs of hepatic coma unless the patient is receiving antibiotics orally to "sterilize" the gastrointestinal tract.

Glucocorticoids should probably be given first to patients with nephrosis since Aldactone, although useful for diuresis, will not directly affect the basic pathologic process.

For **children** the daily dosage should provide 1.5 mg. of Aldactone per pound of body weight.

References: **1.** Coodley, E. Consultant 12:106-107, 109, 111, 113, 115 (July) 1972. **2.** Thorn, G. W., and Lauler, D. P. Am. J. Med. 53:673-684 (Nov.) 1972

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The Role of the Detail Man

Opinion & Dialogue

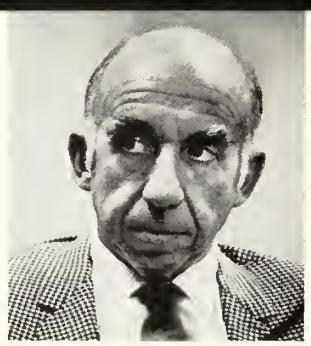


Dr. Willard Gobbell
Family Physician
Encino, California

"I may be prejudiced, but I am very much in favor of the detail men I meet. Most of them are knowledgeable about the drugs they promote and can be a great help in acquainting me with new medication."

Family Physician's Perception

I think that most general practitioners in this area feel as I do about tne detail man. Over the years I have gotten to know most of the men who visit me regularly and they in turn have become aware of my particular interests and the nature of my practice. They, therefore, limit their discussion as much as possible to the areas of interest to me. Since I usually see the same representative again in future visits, it is in his best interest to supply me with the most honest, factual, as well as up-to-date information about his products.



Dr. Jeremiah Stamler
Chairman
Department of Community Health and Preventive Medicine, and Dingman Professor of Cardiology
Northwestern University Medical School

"In the total picture of dealing with health problems in this country, there is a potential for detail men to play a meaningful role."

The Positive Influence

My contact with representatives and salesmen of the pharmaceutical industry is the type of contact that people in a medical center, research people, and academic people have and that's in all likelihoc on a somewhat different level from that of the practicing physician.

Let me touch on how I personally perceive the role of the sales representative. These men reach large numbers of health professionals. Thus they could be—and at times actually are—disseminators of useful information. They could consistently serve a real educational function in their ability to discuss their products.

At present they do distribute printed material, brochures and pamphlets—some of it scientifically sound and therefore truly useful—as well as some excellent films produced by the pharmaceutical industry. When they function in this

s He a Source of Information?

Yes, with certain reservations. he average sales representative as a great fund of information bout the drug products he is responsible for. He is usually able to nswer most questions fully and ntelligently. He can also supply eprints of articles that contain a reat deal of information. Here, oo, I exercise some caution. I usually accept most of the statements nd opinions that I find in the apers and studies which come om the larger teaching facilities. goes without saying that a physician should also rely on other ources for his information on harmacology.

raining of Sales Representatives

Ideally, a candidate for the osition as a sales representative a pharmaceutical company hould be a graduate pharmacist ho has a questioning mind. I don't ink this is possible in every case, nd so it becomes the responsibility of the pharmaceutical company to train these individuals comprehensively. It is of very great importance that the detail man's knowledge of the product he represents be constantly reviewed as well as updated. This phase of the sales representative's education should be a major responsibility of the medical department of the pharmaceutical company.

I am certain that most of these companies take special care to give their detail men a great deal of information about the products they produce—information about indications, contraindications, side effects and precautions. Yet, although most of the detail men are well informed, some, unfortunately, are not. It might be helpful if sales representatives were reassessed every few years to determine whether or not they are able to fulfill their important function. Incidentally, I feel the same way about periodic assessments of everyone in the health care field, whether they be general practitioners, surgeons or salesmen.

Value of Sampling

I personally am in favor of limited sampling. I do not use sampling in order to perform clinical testing of a drug. I feel that drug testing should rightly be left to the pharmacology researcher and to the large teaching institutions where such testing can be done in a controlled environment.

I do not use samples as a "starter dose" for my patients. I do, however, find samples of drugs to be of value in that they permit me to see what the particular medication looks like. I get to see the various forms of the particular medication at first hand, and if it is in a liquid form I take the time to taste it. In that way I am able to give my patients more complete information about the particular medications that I prescribe for them.

---

apacity they are indeed useful; rticularly in the fact that they sseminate broadly based educanal material and serve not just "pushers" of their drugs.

he Other Side of the Coin

Obviously, the pharmaceutical companies are not producing all is material as a labor of love—ey are in the business of selling oducts for profit. In this regard e ambitious and improperly motited sales representative can ert a negative influence on the acticing physician, both by prenting a one-sided picture of his oduct, and by encouraging the actitioner to depend too heavily drugs for his total therapy. In ese ways, the salesman has often storted objective reality and ndermined his potential role as an ducator.

he Industry Responsibility

Since the detail man must be information resource as well as representative of his particular harmaceutical company, he ould be carefully selected and thoroughly trained. That training, perforce, must be an ongoing one. There must be a continuing battle within and with the pharmaceutical industry for high quality not only in the selection and training of its sales representatives, but also in the development of all of its promotional and educational material.

The industry must be ready to accept constructive as well as corrective criticism from experts in the field and consumer spokesmen, and be willing to accept independent peer review. The better educated and prepared the salesman is, the more medically accurate his materials, the better off the pharmaceutical industry, health professionals and the public—*i.e.*, the patients—will be.

Physician Responsibility

The practicing physician is in constant need of up-dated information on therapeutics, including drugs. He should and does make use of drug information and answers to specific questions supplied by the pharmaceutical representative. However, that information must not be his main source of continuing education. The practitioner must keep up with what is current by making use of scientific journals, refresher courses, and information received at scientific meetings.

The practicing physician not only has the right, but has the responsibility to demand that the pharmaceutical company and its representatives supply a high level of valid and useful information. I feel certain that if such a high level is demanded by the physician as well as the public, this demand will be met by an alert and concerned pharmaceutical industry.

From my experience, my impression is that sectors of the pharmaceutical industry are indeed ethical. I challenge the industry as a whole to live up to that word in its finest sense.

Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W.
Washington, D.C. 20005

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who are admitted to the addictions center. Alcohol and drug abusers below the age of 20 present particular problems and unique program components must be designed to suit their needs.

A special school program has been established in which a teacher, funded by the Department of Education, Adult Education Division, works with patients. Approximately 50 percent of the patients participate in the school program, which is largely remedial. With the cooperation of the vocational rehabilitation division in the Center, basic educational skills are taught patients to facilitate job placement and encourage job advancement.

Two additional teachers are needed for the school program but lack of funds prohibits present expansion.

A grant of $73,000 from the S. C. Interagency Committee has been secured for a media center. Equipment for a color television studio is being purchased. The objectives of the studio are:

—to provide patients the opportunity to review and respond to video tapes of themselves for self-confrontation,

—to be used as a training aid in staff development, group therapy leadership training and recovery techniques,

—to provide addiction rehabilitation related tapes to be made available to all state agencies.

An antenna tap on all TV's in the center will also facilitate educational projects and special programming.

The Alcohol and Drug Addictions Treatment Center is in the process of purchasing bio-feedback equipment for therapy purposes.

The Menninger Foundation has thoroughly studied this electronic equipment and found it gives faster and more perceptible therapeutic information on selected patients, thereby increasing the amount of objective information available for personal processing.

The major concept behind the equipment is that some previously thought involuntary body processes are not really necessarily involuntary. If a patient feels he can control some of his body processes, this reassures him and encourages him to want to gain control over other things in his life.

For example, a temperature device is to be used which can measure one's body temperature and register temperature changes induced by the patient's concentration. In practice, some control of one's temperature is generally accompanied with a sense of overall well-being and relaxation.

A myograph, a muscle measuring device, will be used to measure how tense an individual is by measuring constriction of the frontalis muscles in the forehead. The myograph can also demonstrate to the patient what subject areas make him tense.

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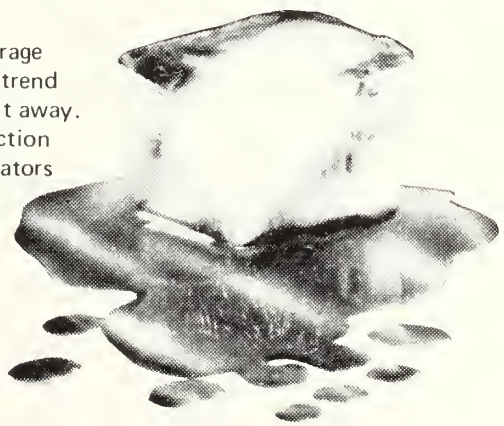
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1. Henry BW, *et al: Dis Nerv Syst 30*:675-679, Oct 1969.
2. Hollister LE, *et al: Arch Gen Psychiatry 24*:273-278, Mar 1971.
3. Claghorn J: *Psychosomatics 11*:438-441, Sept-Oct 1970.

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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association. Business office 1508 Washington Street, Columbia, South Carolina 29201.

Subscription price: $6.00 in the U. S. ($7.00 per year, Foreign). Second Class Postage paid at Columbia, S. C. and at additional mailing offices.

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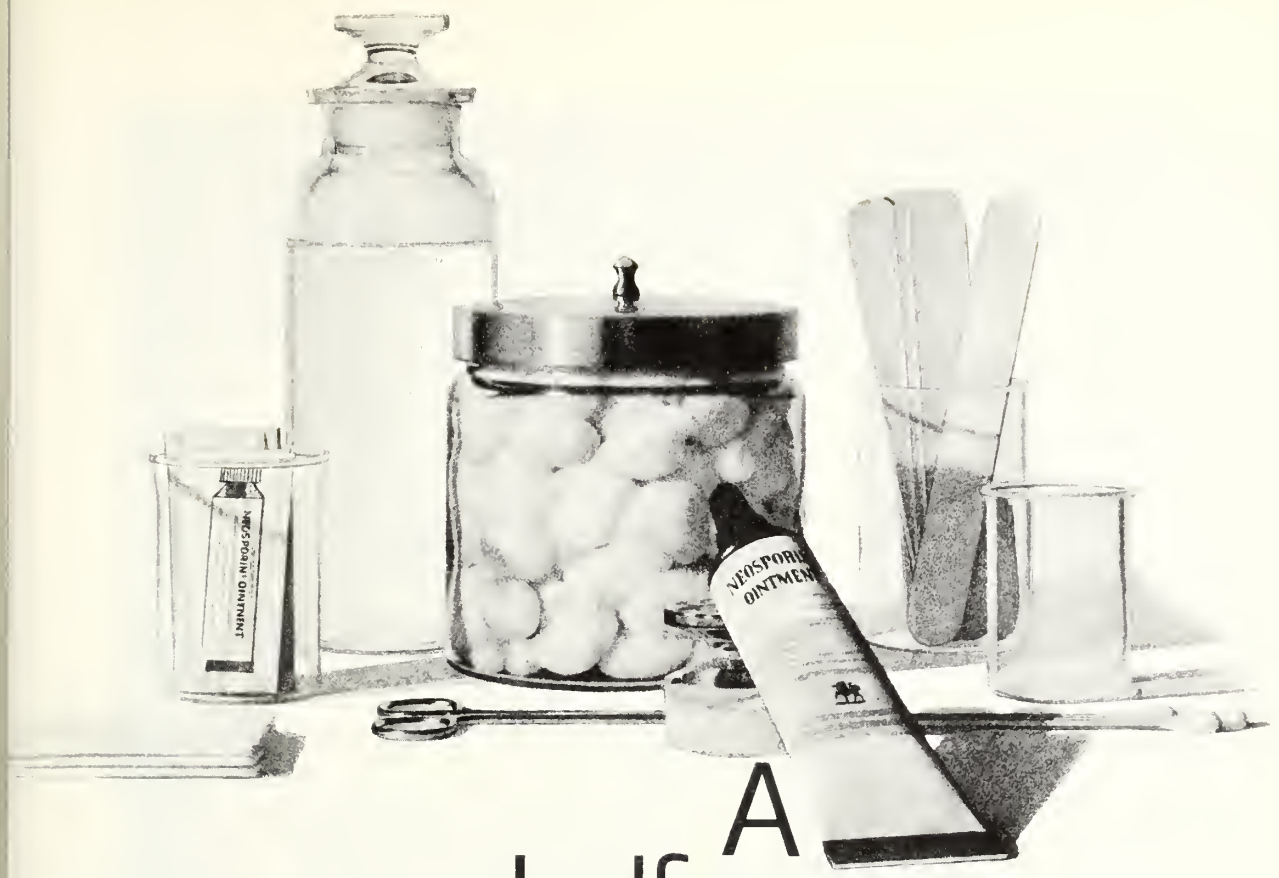
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REYE'S SYNDROME IN SOUTH CAROLINA

JAMES B. KEY*
CHARLES P. DARBY, M.D.**

In 1963, Reye, et al.,[1] described a syndrome characterized by cerebral edema with encephalopathy and fatty degeneration of the viscera. Cases of encephalopathy and fatty degeneration of the viscera which fit Reye's description were recorded as early as 1929.[2] Since 1963, cases have been reported from many parts of the world in geographic clusters and microepidemics. In the last decade, the clinical and pathological features have been clearly defined and more cases will probably be recognized as physicians become acquainted with this syndrome.

This is primarily a disorder of childhood with an age range of two months to fifteen years. Clinically the process is remarkably consistent from patient to patient. There is usually a mild prodromal illness, frequently an upper respiratory infection or gastroenteritis. Cases have been documented where the preceeding illness was a varicella-zoster infection.[3] After a variable period of time in which the patient may appear to be getting better there is sudden onset of vomiting, fever, convulsions, and coma. Often there is initial drowsiness followed by a period of excitation manifested by delirium, agitation, hyperactivity and confusion after which the patient becomes stuperous and comatose. Reye, et al., described a characteristic posture with "the elbows flexed, legs extended, hands clenched." Hyperpnea and irregular respirations are usually present with death often secondary to respiratory failure. Hepatomegaly is seen in about half of the patients but jaundice is rare. Elevated blood ammonia, liver enzyme elevation and prolonged coagulation time have emerged as salient features. The blood ammonia level returns to normal in two to three days and the liver enzymes return to normal in seven to ten days. It is of interest to note that there is marked evidence of hepatic failure without jaundice or elevation of bilirubin. Varying degrees of hypoglycemia have been noted in about half the cases and it may be marked. Glick reported that low glucose values were present more commonly in children under five years of age.[4] Blood gases show a metabolic acidosis with a respiratory alkalosis and a pH in the alkaline range. CSF pressure may be elevated but cell count and protein values are normal. The CSF glucose level may be low corresponding to low blood glucose values. EEG shows diffuse slow wave activity but no specific abnormality.

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Pathological findings of this syndrome have been well characterized. Although the changes in the brain are nonspecific, the associated visceral abnormalities allow one to distinguish this disorder from other types of encephalopathy. Cerebral edema with or without neuronal changes, but without evidence of inflammation, is a uniform finding. The liver is yellow to orange in color with a firm, greasy cut surface. There is marked fatty infiltration with increased triglycerides and free fatty acids and decreased glycogen. There is swelling of the mitochondria, proliferation of smooth endoplasmic reticulum and an increase in peroxisomes. The renal cortex may be widened and pale with fatty accumulation in the proximal tubules. Fatty infiltration of the myocardium, skeletal muscle and pancreas and interstitial pneumonitis have been noted.

The etiology of the encephalopathy is not clear at the present time. It has been postulated that some toxin affecting both the brain and liver is responsible. Another theory is that the encephalopathy is due to metabolic abnormalities secondary to liver failure. Hypoglycemia, elevated blood ammonia, increased levels of free fatty acids, and abnormal metabolism of amino acids of neurotransmitters have been considered.

Although suspected, no specific infectious etiology has been consistently associated with this syndrome. Varicella, influenza A and B, reovirus, Echo, Coxackie A and B, rubella and parainfluenza viruses have been described in association with Reye's syndrome.[3,5,6,7] Varicella has been reported as the prodromal illness in a number of cases. Influenza B has received much attention of late due to an increased incidence of Reye's syndrome associated with outbreaks of Influenza B in several areas of the United States.[5] Various toxic substances have been suggested as etiologic agents including salicylates and isopropyl alcohol. Aflatoxins, a group of mycotoxins, have been studied in Thailand and New Zealand. These toxins produced by various species of aspergillus and penicillium are encountered as food contaminates. They are known to affect the liver (hepatitis with bile duct proliferation and hepatoma) and have been suspected as a cause of predisposing factor of Reye's syndrome. It has been noted that the aflatoxin contamination of food follows the seasonal and geographical incidence of Reye's syndrome in Thailand.

The true incidence of Reye's syndrome is difficult to ascertain. Cases have been reported world wide and vary from sporadic cases to geographic clusters. In Thailand it is a leading cause of death in children. Multiple cases within families have been reported. It is likely that many cases of acute encephalopathy of undetermined etiology in the past were really Reye's syndrome and with an increased index of suspicion the diagnosis will be made more often.

TYPICAL CASE

A seven-year-old white female presented with a history of having developed a cold with cough, rhinorrhea and slight temperature elevation four days earlier. On the third day of the illness the symptoms of the respiratory infection seemed to be subsiding; however, she became drowsy and began vomiting. On the morning of admission the mother was unable to arouse the child. The only medication the patient had received up to that time had been aspirin, 300 mg. every 4 hours.

Physical examination revealed a well developed, well nourished, comatose white female. Respirations 50, heart rate 120, blood pressure 110/60, temperature 104 F. No jaundice or skin lesions were noted. Pupils were slightly dilated but reacted to light. There was no papilledema. Her lungs were clear to percussion and auscultation, and the patient had spontaneous deep labored respirations. The heart had a regular rhythm without murmur. The liver was palpable 2 cm. below the right costal margin. Deep tendon reflexes were hyperactive. The patient did not respond to auditory stimuli or pinprick. She responded to deep pain with extensor posturing and had bilateral planter extensor response (positive Babinski).

Laboratory data: hemoglobin 12.5, hematocrit 36 vols. per cent, WBC's 15,000. Blood glucose 70 mgm. per cent, BUN 30 mgm. per cent, sodium 133 mEq/L. Potassium 3.6 mEq/L, chloride 108 mEq/L, CO_2 14 mEq/L. Blood ammonia 151 mcg.

per cent. SGOT 605 Iu, SGPT 553 Iu. Alkaline phosphatase 150 Iu. Total bilirubin 2.6 mgm. per cent. Prothrombin time was prolonged with 50 per cent activity. A lumbar puncture was performed and CSF pressure was elevated. Cell count 0, protein 42 mgm. per cent, and glucose 60 mgm. per cent.

The child continued to have progressive, unrelenting encephalopathy with rapidly deepening coma and some seizure activity. Body temperature climbed to 106 F despite the use of a cooling blanket. Fifteen hours after admission, spontaneous respiratory effort ceased and respiratory assistance became necessary. EEG thirty-six hours after admission revealed isoelectric activity and the patient expired forty-eight hours after admission.

Autopsy studies revealed the liver to be enlarged and firm with a yellow, greasy cut surface. Microscopic sections showed fatty metamorphosis involving the entire liver. The kidneys were pale with a widened cortex, and there was fat deposition in the proximal convoluted tubules and the loops of Henle. Examination of the brain revealed cerebral edema with tonsilar herniation. No inflamatory changes in the brain were noted.

Case Reports: The eleven cases included in this report represent all of the cases in South Carolina known to the authors in which the diagnosis of Reye's syndrome was clearly established. Cases one through seven were hospitalized at the Medical University Hospital in Charleston, Cases eight and nine were hospitalized at Richland Memorial Hospital in Columbia. Cases ten and eleven were hospitalized at Greenville General Hospital. The cases reported occurred in the time interval from December 1971 to March 1974. No South Carolina cases were found documented prior to 1971.

The diagnostic criteria used in establishing the diagnosis of Reye's syndrome in these cases are as follows:

1. A consistent history of a mild virus-like prodromal illness followed by vomiting and various changes in sensorium progressing rapidly to coma.
2. Hepatic dysfunction evidenced by abnormalities in blood ammonia, liver enzymes and prothrombin time.
3. Neurological abnormalities evidenced by an abnormal EEG, changes in sensorium, seizures, decortication or decerbration.
4. Exclusion of other disease entities with a similar presentation.
5. Pathological studies showing cerebral edema and fatty infiltration in the viscera, primarily the liver and kidneys.

The clinical data is summarized in Table 1. The ages vary from six months to fifteen years. In all but one of the cases, a preceeding mild viral type illness was noted. One patient presented with seizures, all had fever, and nine had vomiting. Following the period of vomiting and temperature elevations, six of these children entered a period of excitation characterized by delirium, confusion, bizarre behavior and disorientation. Hepatomegaly was present in six of the eleven patients. Case eight had jaundice; however, he was known to have sickle cell disease with hemolysis. All patients rapidly progressed to stupor and coma. The depth of coma was assessed according to criteria outlined by Huttenlocher.[10] In Stage I, the patient is stuperous or delirious but can be aroused for brief periods by strong sensory stimulation. In Stage II, the patient cannot be aroused by painful stimuli, but reacts to such stimuli with avoidance movements or flexion of the arms. In Stage III, painful stimulation produces extensor (decerbrate) posturing of the arms. Pupillary light reflexes and spontaneous respirations are maintained. In Stage IV, the patient is flaccid and does not respond to painful stimulation. Spontaneous respirations and pupillary light reflexes are absent.

Of the eleven cases, five patients survived. Four are known to be neurologically normal, and one is in the early recovery period.

Table 2 summarizes the laboratory data. In all of the cases in which the SGOT and blood ammonia were done early, the values were elevated. In Case 10, studies were not done until the fourth day. SGPT, LDH, alkaline phosphatase

Case #	Age/ Race Sex	Preceeding Illness	Vomiting	Fever	Excitation	Level of Coma	Decrebrate or Decoritate	Hepatomegaly	Outcome	Pathology
1	6 YO/WF	URI	+	107.6	+	III	+	+	D	CE[1] FML
2	7 YO/WF	URI	+	103	-	II	+	+	D	NA[2]
3	13 YO/WF	URI	+	101.6	+	III	+	-	S	-
4	14 YO/WM	URI	+	106.4	+	III	+	-	D	CE FML
5	6 M/NF	URI	+	101	-	III	+	+	D	CE FML
6	7 MO WF	gastro-enter.	+	100.6	-	II	+	-	S	-
7	4 MO/WM	URI	+	104	-	III	+	+	D	CE FML
8	15YO/NF	URI	-	105	+	II	-	+	S	-
9	11 MO/NF	URI	+	103	-	III	-	+	S	-
10	2 YO/WF	URI	+	106	+	IV	-	-	D	CE FML
11	11 YO/WM	-	-	106	-	post ictal	+	-	S	-

1)CE - cerebral edema
FML - Fatty metamorphosis of the liver
2) NA- No autopsy performed

Table 1 - Summary of Clinical Data

Case #	SGOT	SGPT	LDH	AlkPhos	Total Bilirubin	PT % Activity	Blood Glucose	NH_3	BUN	Outcome
1.	275	210	240	248	NR	36%	90	131.2	20	D
2.	133	132	424	0.4	61%	61%	23	385	15	D
3.	1132	1122	725	NR	NR	67%	100	NR	33	S
4.	795	665	1592	189	4.1	40%	111	555	46	D
5.	750	733	2000	NR	2.1	30%	12	NR	30	D
6.	53	17	598	NR	0.3	NR	342	243	48	S
7.	1130	315	10070	272	NR	28%	154	119	40	D
8.	7900	NR	1800	95	8.2	50%	52	87	19	S
9.	105	102	505	185	0.2	46%	15	97	42	S
10.	NR	NR	NR	NR	NR	NR	NR	NR	NR	D
11.	7300	NR	7600	155	1.3	100%	242	42	14	S

NR - not reported

Table 2 - Summary of Laboratory Findings (Initial Determinations)

and BUN were elevated in most of the patients in whom they were determined. The prothrombin time was prolonged in eight of nine patients in whom it was determined. Total bilirubin was normal or only slightly elevated except in case eight, the patient with sickle cell anemia. Hypoglycemia was noted in four of the patients. Two of these were under one year of age. Three patients had hyperglycemia but these patients had been receiving glucose solutions prior to the determination. Case ten was an autopsy diagnosis and laboratory values for liver functions were not obtained.

Therapy: A number of programs for treatment of hepatic coma have been proposed and thus far assessment of these measures has been difficult. A small number of cases have shown some survivors following exchange transfusion.[10] Samaha, et al., have recently reported enthusiastic results with the use of peritoneal dialysis and an hepatic coma regimen of glucose infusions, oral neomycin, and saline enemas.[11] They reported survival of nine of eleven patients with the use of peritoneal dialysis as compared to two survivors out of thirteen with only the hepatic coma regimen. This enthusiasm is somewhat dampened by a second report from the same center where only two of the eleven survived with peritoneal dialysis treatment.[12] Some favorable results have been observed with an insulin-glucose regimen.[13] Nicotinic acid is being investigated in some centers but no results have been published to date (personal communication). All agree on the use of neomycin orally to diminish gut bacteria, and on the use of vitamin K for clotting abnormalities. The value of steroid, mannitol and glycerol in decreasing cerebral edema is debatable. The clinical course of the disease itself is so variable that it is difficult to prognosticate and assess therapy. Until scientifically controlled testing has been carried out, no decision as to the value of these regimens can be made.

Table 3 is a summary of the therapy in the cases included in this report. Of

Case #	Peritoneal Dialysis	Exchange Transfusion	Steroids	Neomycin	Vitamin K	Mannitol	Insulin-Glucose	Nicotinic Acid	Outcome
1.	+		+	+	+				D
2.	+		+	+	+	+			D
3.			+			+	+		S
4.		+	+	+	+	+			D
5.			+						D
6.	+		+	+	+	+		+	S
7.					+		+		D
8.		+		+	+				S
9.		+		+	+				S
10.			+						D
11.								+	S

Table 3 - Summary of Treatment Modalities

the eleven patients, three were treated with peritoneal dialysis, three with exchange transfusions, two received insulin and glucose and two received nicotinic acid. Sterilization of the GI tract with oral neomycin was used in six patients. Vitamin K was used in seven of the patients. Seven patients received steroids and four were given mannitol for increased intracranial pressure secondary to cerebral edema. Some progressed so rapidly that little could be done therapeutically.

F. H. Lovejoy and his co-workers,[15] (personal communication) have suggested a method of clinically staging Reye's syndrome which may be helpful in the clinical evaluation and prognostication. This experience has shown that Stages 1-3 are compatible with full recovery. No cases in this series survived after reaching Stage 4.

Five stages in the progression of the disease:

1. Vomiting, lethargy, liver dysfunction and abnormal EEG.
2. Delirium, hyperventilation, hyperactive reflexes, liver dysfunction and abnormal EEG.
3. Obtundation, coma, decortication, liver dysfunction, and abnormal EEG.
4. Deepening coma, decerebration, rostal caudal progression of the brain stem dysfunction, improvement of liver dysfunction, and an abnormal EEG.
5. Seizures, loss of reflexes, respiratory arrest, correction of liver dysfunction and an isoelectric EEG.

Factors prognosticating a poor outcome:

1. Rapid progression to clinical Stages 1 through 3.
2. Presenting blood ammonia of greater than 300 mcg. per cent.
3. Elevation of CSF pressure in Stage 3.
4. A prolongation of prothrombin time in Stage 2 or 3 greater than 14 seconds beyond control.
5. Onset of seizure activity in Stage 2 or 3.
6. An EEG showing disorganized polyrythemic low voltage delta activity.

SUMMARY

Reye's syndrome has become more prevalent in South Carolina during the past 2½ years. The diagnosis of Reye's syndrome should be considered in any child who presents with a history of a viral type illness, such as an upper respiratory infection or gastroenteritis, followed by vomiting and lethargy and decreasing CNS function progressing to coma. One cannot be certain of the value of therapy, nor can one be certain that the early initiation of a treatment program may enhance the prognosis. It may be practical to conclude that early intensive supportive care in such a rapidly progressive disease may decrease morbidity and mortality.

Acknowledgment

We would like to express our gratitude to Dr. R. S. Brownlee of Greenville General Hospital, Greenville, S. C. and Dr. S. Ellis of Richland Memorial Hospital, Columbia, S. C. for providing us with the information on their cases.

ADDENDUM

A 6½ year old female child was stricken on 6/1/74 with Reye's disease following a case of chickenpox. Therpeutic efforts were of no avail and the child expired on 6/5/74. Another female child was stricken with the disease on 5/28/74 and expired on 6/1/74. All of the clinical laboratory and post mortem findings are similar to those reported in this article.

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INTRAVENTRICULAR MONITORING OF THE CRANIOCEREBRAL TRAUMA PATIENT

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INTRODUCTION

Monitoring of intraventricular cerebrospinal fluid pressure in patients with serious head injuries has become an essential part of our care of these patients. For example, the slow and simple withdrawal of a few milliliters of cerebrospinal fluid can reduce intracranial tension often more effectively than commonly used drugs. Within the past year this has become standard therapy in the care of our patients. We also have been studying the chemistry of the ventricular cerebrospinal fluid. In this paper we would like to report preliminary results in the analysis of not only cerebrospinal fluid pressure. but also hydrogen ion concentration, partial pressure of oxygen, partial pressure of carbon dioxide, and oxygen consumption, all of which gave additional useful clinical data.

MATERIAL AND METHODS

All of our patients were admitted to the Medical University Hospital Trauma Unit which is especially equipped for patient monitoring and the recording of various functions on a continuous basis. Four patients are herein reported. Before admission to the unit, each patient had a cerebral angiogram and an echoencephalogram to rule out a mass lesion. Case P.G., Class F, was found to have an acute subdural hematoma which was evacuated. Upon admission a ventricular catheter was inserted. This was done either in the Trauma Unit under sterile conditions or in the operating room. A right frontal burr hole was made in all cases and a 7 cm. ventricular catheter was inserted into the right frontal horn of the lateral ventricle. Without withdrawing cerebrospinal fluid (CSF), the catheter was connected to a transducer which was in turn attached to a Hewlett-Packard, 8 Channel recorder, Model Number 7700 ink writer, for continuous recording of CSF pressure along with other parameters.

CSF was withdrawn twice daily and analyzed for hydrogen ion concentration (pH), partial pressure of carbon dioxide (pCO_2) and partial pressure of oxygen (pO_2). In addition to ventricular CSF pressure, there was continuous monitoring and recording of blood pressure, central venous pressure, pulse, respiration, blood gases, CSF and blood lactates and pyruvates, cardiac output and pulmonary volume. Daily or more frequent measurements were made of the cardiac output with Lexington Instruments, Cardiac Output Computer and the percentage of pulmonary arteriovenous shunting. Blood pH, PO_2 and PCO_2 were measured utilizing the Instrumentation Toleration Model 313 Blood Gas Analyzer. The same instrumentation was utilized to measure the CSF values of oxygen utilization and the arteriovenous shunts. All determinations made on measured oxygen concentration, from an Ohio Volume Respirator Model 560, and the figures utilized in this report were obtained with 100 per cent

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oxygen flow.

We have classified our patients retrospectively. We used the following classification: A, full recovery; B, minor neurological deficit; C, major defect but able to care for self; D, unable to care for self; E, died after discharge from hospital; and F, died during hospital course. In this report, we have patients of the C, D, E and F group.

RESULTS

The results are presented in graph form in Figures 1 through 5. We have oversimplified the facts in these graphs in order to present our data clearly. All authors agreed, after reviewing the total data, that on or about day three, critical changes in the chemical composition and pressure of ventricular cerebrospinal fluid were present. All patients were treated basically the same; consequently, the emphasis of our results is not on various therapies but on the outcome of the patient.

When the cerebrospinal fluid pressure within the ventricle remains high or fluctuates greatly, as various therapies try to reduce it, the patients do poorly. When the cerebrospinal fluid pressure stays below 10 mmHg or 130 cm of water, the patients do much better. In our Grade C patient, the intracranial cerebrospinal fluid ventricular pressure on admission was 7 mmHg. The highest recorded was 9 to 10 mmHg, with a final stabilization of about 5 mmHg. In this patient there was neither a great fluctuation of intracranial pressure nor elevation of pressure. Even though the Class D patient started out with very high intracranial pressures, he was treated effectively and his intracranial pressure was soon below 10. This patient survived (Figure 1). In the Class E patient there was fluctuation with intermittent elevation of the pressure with a stabilization at the upper limits of acceptability at 10 mmHg. However, in the Class F patient who did poorly and died while in the hospital, the pressure was initially high at 20 to 30 mmHg, fluctuated greatly from 10 to 30 mmHg, and never stabilized in spite of our therapy.

The cerebrospinal fluid pO_2 ranges between 30 and 40 mmHg when under nor-

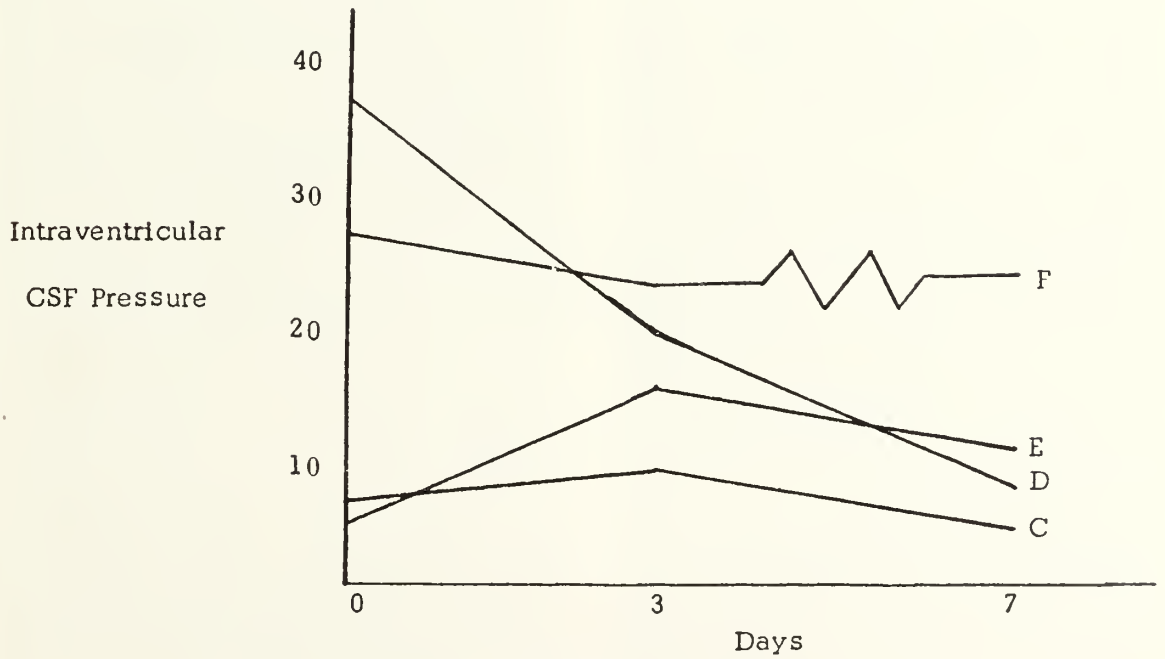


Figure 1

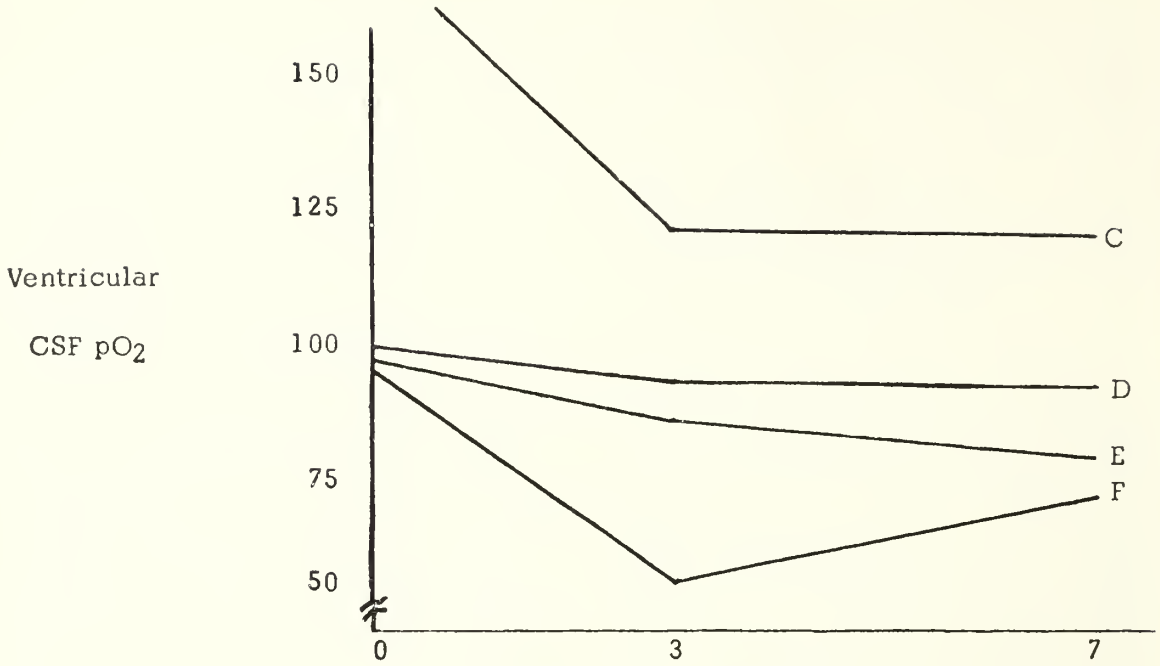


Figure 2

mal conditions arterial pO_2 is near 100 mmHg. The partial pressure of oxygen in the cerebrospinal fluid of the ventricle is elevated above normal when patients are breathing 100 per cent oxygen and have an elevated saturation of their arterial blood to at least 350 mmHg and often over 400 mmHg. In patients who do well, there is a good transport of oxygen from the blood to the cerebral spinal fluids of the ventricle. In the patients who do poorly, the results indicate that there is interference with the transport mechanism and there is a lower oxygen partial pressure of the ventricular spinal fluid. In our Grade C patient, this cerebrospinal fluid pO_2 was initially greater than 150 and stabilized at 120 mmHg (Figure 2). In the Class D patient, the initial pO_2 was 100 mmHg, fell to 90 on the fourth day and stabilized at this level. In the Grade E patient, the initial pO_2 was further depressed to 95, slowly drifted into the 80's and stabilized at approximately 80 mmHg. In the Class F patient the cerebrospinal fluid pO_2 initially was also depressed, and fell to 50 mmHg in spite of adequate oxygenation of the peripheral blood. This occurred on the first day following the removal of an acute subdural hematoma. It stabilized at 70 mmHg after approximately a week to ten days.

The ventricular cerebrospinal fluid partial pressure of carbon dioxide varied with both the partial pressure of carbon dioxide in the systemic circulation and the condition of the brain. From our results this parameter varied greatly with the general condition, the pulmonary status, and the cerebral metabolism. It was impossible to separate the patients except on the basis of their initial determination where the most seriously injured patient tended to have the slightly higher pCO_2. However, there are many exceptions. All of the patients grouped together (Figure 3) showed a drop in the CO_2 on or about the third day. We cannot explain this observation for there was not an equivalent change in arterial pCO_2 at that time.

The oxygen consumption of the entire brain, which is based primarily on the

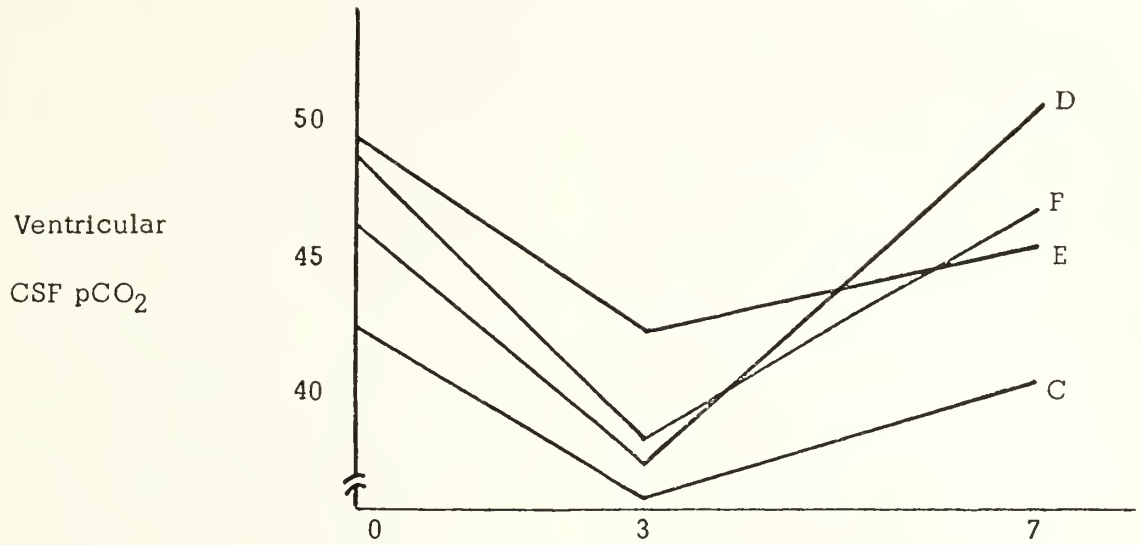


Figure 3

difference between systemic arterial and jugular vein oxygen difference, appears useful in predicting the patient's future. In the patients who do well, there is increased oxygen consumption after trauma as the brain mends itself. In the patients who do poorly, oxygen consumption is interfered with markedly and they remain in a depressed metabolic state. For example, Class C patients showed oxygen consumption initially at 70 which rose to 115 and stabilized in the range of 80. This is distinctly above the normal levels of approximately 50. In the Class D patient, the oxygen consumption was in the range of normal of around 50 initially and stabilized at a slightly depressed level. This patient has shown depressed cortical function for more than a year and we feel this represents some significant percentage of permanent brain damage in the patient. In the Class E patient, there was a slight rise to 55 on the third day. Although within the upper levels of normality, this elevation was not significantly maintained and the patient stabilized in the 40's and later died. The Class F patient, whose range of 20 showed a cerebral oxygen consumption of less than half of normal during the entire monitoring session did poorly in all aspects.

DISCUSSION

Recording of intracranial pressure in patients was probably first successfully done by Ryder in 1952.[22] Since this time it has been used in many conditions affecting the human brain and much new information has been gained from its use.[11, 12, 15, 16, 21, 22, 27, 28, 29, 30] Various methods have been applied, varying from subdural pressure transducer to direct intraventricular pressure recordings.[2, 11, 12, 15, 16, 17, 21, 23, 26] The value of continuous monitoring of intracranial pressure has been shown by several authors.[10, 11, 12, 13, 15, 27, 28, 29, 30]

We chose the use of intraventricular catheters for several reasons. It is an easy procedure with few comcplications. There was no difficulty with occlusion of the catheter. The best part of the intraventricular catheter is that the cerebrospinal fluid at any time can be withdrawn both to analyze the condition of the brain and to treat increased intracranial pressure. Each of our patients with severe head injuries was treated vigorously with various methods to reduce intracranial pressure when recordings were high. These include the use of Mannitol, Lasix, hyperventilation and elevation of the head of the bed.

In comparing our results we come to a conclusion similar to Troupp's — the initial pressure reading is not as important prognostically as is the difficulty in controlling the intracranial pressure.[28] For example, Patient D had very high pressures initially but these were controlled and he survived. Patient E, whose initial pressure was only 6-7 mmHg, showed much fluctuation between 10-15 mmHg and whose pressure was never effectively controlled, died four months after injury. It is also accepted that patients with generalized head injuries with steady high pressures, all died. Troupp found also that the group that had increased intracranial pressure with wide fluctuations either died or became vegetative wrecks. Patient F was such an example.

In regard to the therapeutic value of the intraventricular catheter, we found that in most patients it provided a simple and safe method of reducing the pressure. We found that Mannitol was an effective agent in reducing the intracranial pressure, but that in certain patients it would fail after a period of time. It has been postulated that this refractoriness to hypertonic agents may reflect a lost of autoregulation of the cerebral blood flow.[11, 27] The patients, whose pressures could be effectively lowered to a desired level by withdrawing cerebrospinal fluid periodically, did well. Patient C is such an example.

One major problem in clinical observation of patients with severe head injuries is in trying to determine which patient is doing poorly due to increased intracranial pressure and tentorial herniation and which have primary brain stem injuries. By direct measurement of the intraventricular pressure it is obvious that this method clearly makes the distinction for us.

The first major study done on cerebrospinal fluid pO_2 was done by Zupping in 1970.[30] In reporting forty-five patients with a variety of head injuries, including intracranial hemorrhage, he established a normal cerebrospinal fluid pO_2 value of 41.2 ± 1.4 and an average in his brain injured subject of 37.1 ± 1.3. He felt that the cerebrospinal fluid pO_2 was significant and valuable in predicting a prognosis, even when indicating only a slight change. Furthermore, he felt that cerebrospinal fluid pO_2 only partly reflected the O_2 of brain tissue. In his series, the patients with a low cerebral spinal fluid pO_2 were deeply comatose and generally did poorly. Our results agree but our pO_2 values are higher because, as stated in the results, the patients were breathing 100 per cent O_2 during the study. We agree with Kazemi that the cerebrospinal fluid pO_2 must depend on a combination of brain tissue pO_2, arterial pO_2, cerebral blood flow and the CSF sampling point.[8] The Class C patient had an initial cerebrospinal fluid pO_2 of greater than 150 mmHg which stabilized in seven days to 120 mmHg. The patient graded F had initial cerebrospinal fluid pO_2 of 95 mmHg and eventually stabilized at 70 mmHg by the seventh day—never rising above 95 mmHg. Patients D and E fell between two extremes perfectly.

We found it difficult to correlate cerebrospinal fluid pCO_2 with prognosis. In these four patients, the lowest value was seen in the patient who did the best clinically. It appears that the pCO_2 levels of cerebrospinal fluid are so labile and diffusable that its only possible value could be in differentiating the very best patient from the rest. In reviewing the literature we found no good correlation with cerebrospinal fluid pCO_2, only that it was decreased in the head injured patient and was probably secondary to decreased blood pCO_2.[7, 19, 30] We cannot explain the rather consistent drop in pCO_2 that is seen on the third day after injury in all patients. There was no similar change in the arterial pCO_2 at that time.

Many methods of measuring cerebrospinal fluid pH have evolved over the past ten years. This varied from lumbar puncture at various intervals to cisternal

puncture and, finally, ventricular cerebrospinal fluid measuring as we have done. In previous reports it has been shown that the normal cerebrospinal fluid pH is 7.388 ± 0.005 which is slightly acidotic to the blood pH. It has also consistently been shown that with brain injury the cerebrospinal fluid pH falls and does so in relation to the severity of cerebral injury.[6, 7, 9, 25, 30, 31] It has been postulated that this represents lactic acidemia in response to poor brain perfusion and subsequent anaerobic metabolism.[1, 7, 9, 14, 30, 31] Furthermore, it has been shown that the cerebrospinal fluid bicarbonate falls in accordance with the increased hydrogen ion concentration.[7]

The study by Zupping showed that the cerebrospinal fluid pH in patients who completely recovered did not differ from that of the controls.[30] Patients who had permanent neurological sequelae and those who failed to recover had an even further reduction of cerebrospinal fluid pH. He concluded that the intensity of brain acidemia is closely related to the extent of brain tissue damage.[30] Our results parallel his results. The patient classed as C showed an initial pH of 7.4 which rose to 7.5 and finally stabilized at 7.4. Never was his cerebrospinal fluid acidotic. Whereas in patient F, the initial cerebrospinal fluid pH was 7.28 and had its peak value at 7.38 and stabilized at 7.32. Again it seems reasonable that the pH value would have been lower if the patients had not been given 100 per cent O_2 for such long and frequent periods of time. We think it is worth mentioning here that Zupping, in analyzing his cases, never observes the hyperventilation causing the cerebrospinal fluid pH to return to normal in severe cases. Ours was a similar experience as seen in patient F.

It seems obvious that one of the best methods to determine how well the injured brain is functioning is to measure its O_2 consumption. Pevsner, et al, have demonstrated in seven patients with severe head injury that O_2 consumption varies directly with prognosis.[20] It must be kept in mind that O_2 consumption is controlled by many variables, the most important of which is regional cerebral blood flow. Meyer, in an experimental study compared the effect of concussion, contusion, and brain stem laceration on cerebral metabolic oxygen consumption.[14] He found a transient increase in oxygen consumption in the group with concussions and a marked decrease in cerebral metabolic rate in the group with severe injuries such as brain stem

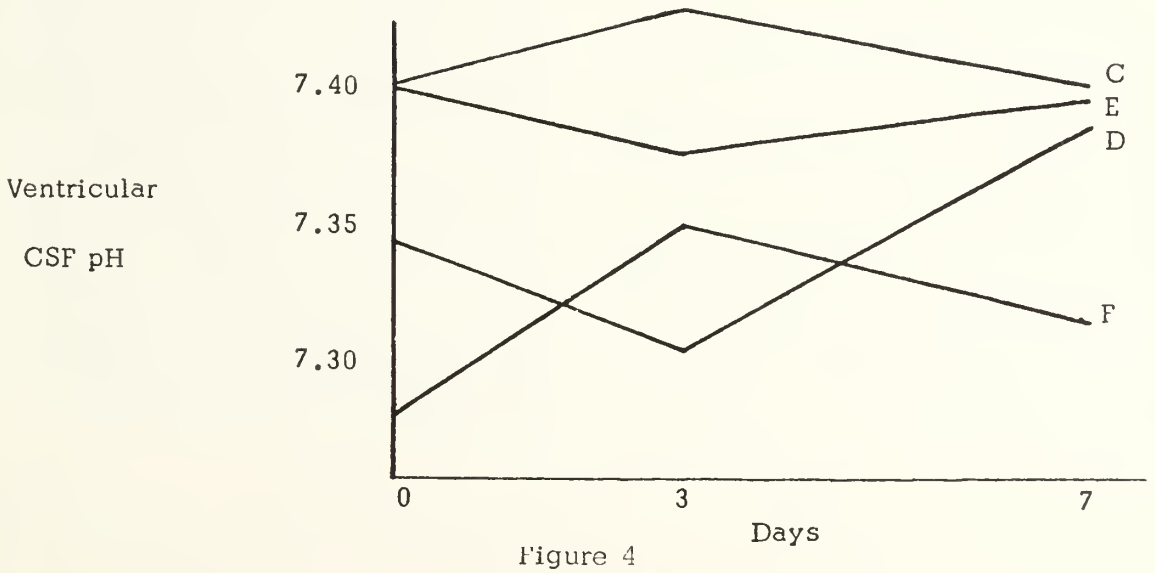


Figure 4

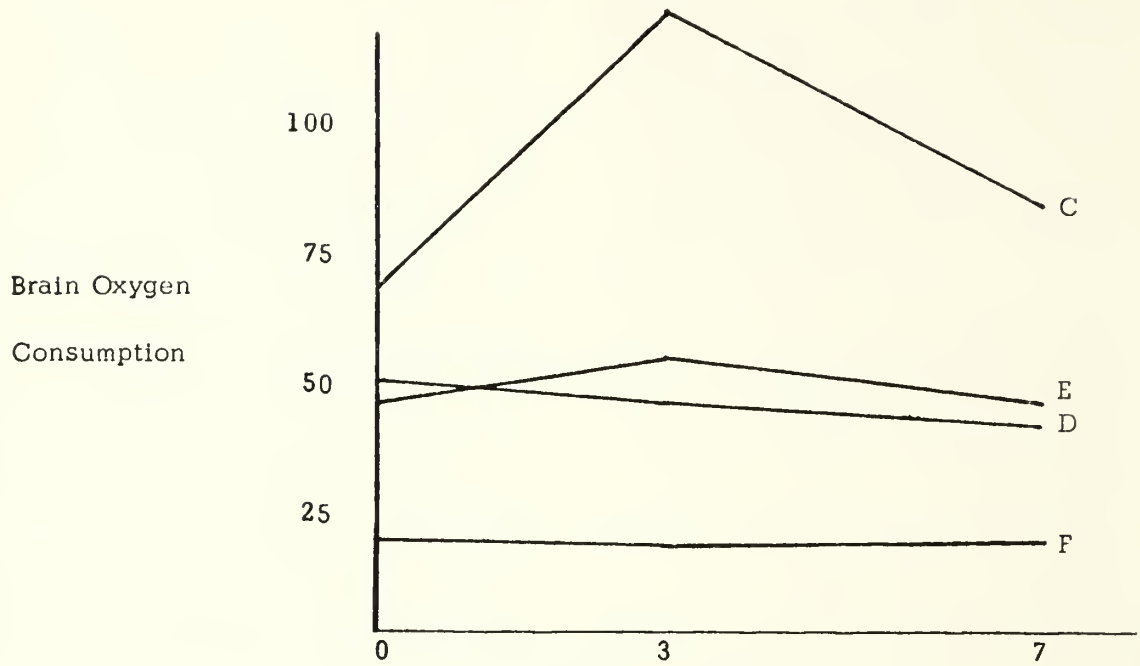


Figure 5

lacerations. The contused group's oxygen consumption fell between these two values.[14] Of all factors analyzed, we felt that the oxygen utilization was the most useful. The initial values going from patient C to patient F were seventy, fifty, forty-five, and twenty milliliters per minute.

We are currently expanding our studies to include mass spectrographic recordings of O_2 levels by way of a intracerebral probe.[18] Further, we feel that others need to become aware of the advantages of intraventricular monitoring, as an aid to improve their patient care.

SUMMARY

In conclusion, we feel intraventricular monitoring has proven to be both a therapeutic and diagnostic aid in the treament of the severely head injured patient.

Increased intracranial pressure has been shown by many investigators to cause alterations in brain function and hemodynamics which can affect the patient's final outcome. Many methods of reducing this pressure, when it is elevated, have been devised. These vary from hyperventilation to the use of hypertonic solutions. While these are effective in many cases, it has been shown by us and others that a significant proportion of the patients will become resistant to these standard methods. The withdrawal of a few milliliters of ventricular CSF often dramatically reduces intracranial tension, and it is here that the ultimate value of the ventricular catheter lies.

Also, we were able to demonstrate a direct correlation of prognosis and eventual diagnosis, with brain oxygen consumption, CSF hydrogen ion concentration and CSF partial pressure of oxygen. With these laboratory determinations, it now appears that one can ascertain the patient's condition more accurately.

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THE BATTERED CHILD SYNDROME

T. P. OCAMPO, M. D.*

HISTORY

The so-called battered child syndrome became a recognized entity when in 1946 Dr. Caffey, a radiologist, reported the radiographic and clinical findings of six cases with x-ray findings of multiple fractures in the long bones and subdural hematomas in patients without an admitted history of trauma.[1] In 1962, Dr. Kempe, a pediatrician, coined the term "the battered child."[2]

The battered child is defined as: "Any child who received nonaccidental injury (or injuries) as a result of acts or (omissions) on the part of his parents or guardians."[3] As it stands, the definition is broad and it covers a wide gamut of abusive practices. Twenty-seven years after its initial conception, the syndrome is very much with us, as a medical and a social problem. There seems to be an increase in the number of reported cases of child abuse and neglect as a result of legally mandated child abuse laws now existing in every state.

STATISTICS IN SOUTH CAROLINA

In South Carolina, there were 16 cases reported during a four-month period in 1966.[4]

In 1972, Bill S198 was passed. This bill was designed to provide for the protection of certain children under the age of 17 years and to provide penalties for violations and to repeal Act 81 of 1965, relating to reporting of certain physical abuse of children. Since 1972, a review of the statistics of the reported incidence of suspected abuse as compiled by the Registry of Child Abuse, reveals the following:

	FY 1971-72	FY 1972-73
A. Cases reported	35	48
B. Age of child	1971-72	1972-73
0 to 6 months	4	13
7 to 12 months	3	2
13 to 24 months	5	2
2 to 4 years	9	12
5 to 8 years	6	7
8 to 12 years	2	9
above 12 years	6	3
	35	48
C. Race of child	1971-72	1972-73
White	22	34
Black	13	12
D. Nature of Injuries:	1971-72	1972-73
Bruises, welts	22	37
Abrasions, lacerations, scratches	13	24
Bone fracture (other than skull)	6	12
Burn, scalding	2	3
Skull fracture	1	8
Subdural hemorrhage	3	3
Brain damage	1	0
Death	1	2
Others (teeth marks, internal injuries, incest, etc.)	11	5
Hospitalization needed	17	12
Needed foster care	19	23
E. Source of report:	1971-72	1972-73
Parent/Relative	0	1
Doctor/Hospital	21	25
Law/Court	4	6
Neighbor/Friend	4	4
School	6	9
Social Worker	0	3

F. Additional statistics for 1972-73:

i: Person injuring child

Mother	16
Father	16
Guardian	6
Unknown	13

ii. Counties reporting abuses:

Aiken	Horry	Sumter
Anderson	Laurens	Williamsburg
Bamberg	Lexington	York
Charleston	Marion	
Cherokee	Oconee	
Clarendon	Orangeburg	
Florence	Pickens	
Greenville	Richland	

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Columbia Area Mental Health Center
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CHILD ABUSE LAW OF SOUTH CAROLINA

The essential elements of the law are as follows:[5]

Section 1: The court of common pleas, county court, family court and in those counties not having a family court, the probate court of the county where the injured child resides or is found shall have jurisdiction over proceedings brought pursuant to this act.

Section 2: A) All practitioners of the healing arts and any person having reasonable cause to believe that a child under the age of seventeen years has been subjected to physical abuse or neglect shall report or cause a report to be made in accordance with this act.

B) An oral report by telephone otherwise shall be made immediately to the county department of public welfare or to the county sheriff's office or chief county law enforcement officer in the county where the child resides or is found.

C) Within 3 days following such oral report, an investigation shall be made by the county welfare department or sheriff's office or chief county law enforcement officer and a written report prepared which will include the following:

1) name, age, address of child and parent-guardian
2) nature and extent of injury suffered by the child, including any evidence of previous injury
3) any other facts or circumstances known to the reporter which may aid in the future determination of guilt or accessory to guilt of the parent-guardian.

All reports prepared by the county sheriff's department or chief county law enforcement officer shall be forwarded to the county department of welfare within twenty four hours or vice-versa.

D) Any person who in good faith makes reports pursuant to this act or participates in judicial proceedings resulting therefrom, shall be immune to liability, both civil and criminal for such reporting.

Section 3: Upon receipt of a report as set forth in Section 2, the sheriff or chief county law enforcement officer, with reasonable cause to believe that the child is in danger if left with the parents, shall immediately petition the court for a temporary order assuring proper care and treatment of the child and such order may provide for remanding temporary legal custody to the court and physical custody to the county department of welfare.

The parents of the child may at any time prior to final disposition of the temporary order apply to the court to vacate such order. A preliminary hearing shall be held within five days of such application.

Parents shall be notified of the time and place of the final hearing. Upon such hearing, the court, if it determines by clear and convincing evidence that the child will suffer if returned to the home shall issue such order as is necessary for the protection of the child which may include an extension of the temporary order or complete termination of parental rights and placing of the child in a proper environment.

Section 4: In any judicial proceeding resulting from the provisions of this act, there shall be no privileged communication between husband and wife, and in the evaluation process there shall be no privileged communication between doctor and patient.

Section 5: Upon receipt of a report, as provided for in Section 2 of this act, the county department of public welfare shall maintain a central registry of all such cases and shall cooperate with the sheriff's office or chief county law enforcement officer and court in temporarily placing the child in an environment to prevent further abuses and neglect.

Section 6: Any person violating the provisions of this act shall be deemed guilty of a misdemeanor and upon conviction shall be fined not more than five hundred dollars or imprisoned for not more than six months or both in the discretion of the court.

DIAGNOSTIC FEATURES

A brief outline of the significant aspects of the history, physical examination and radiologic manifestations in making a diagnosis of child abuse in children is as follows:

"History: 1) The parents often relate a story that is at variance with the clinical findings; 2) Multiple visits to various hospitals; 3) Familial discord or financial stress; 4) Reluctance of parents to give information.

Physical Examination: 1) Signs of general neglect, poor skin hygiene, malnutrition, withdrawn, irritability, repressed personality; 2) Bruises, abrasions, soft tissue swellings, hematomas, old healed lesions; 3) Evidence of dislocation and/or fractures of the extremities.

Radiologic manifestations: 1 Sub-periosteal hematomas; 2) Epiphyseal separations; 3) Periosteal shearing; 4) Metaphyseal fragmentation; 5) Previously healed periosteal reactions; 6) Squaring of the metaphysis."[6]

PSYCHODYNAMICS

A review of statistics of child abuse cases shows that the parents involved come from varying socio-economic and educational levels.

Drs. Pollock and Steele found that a pattern of parent-child relationship in these families is a high demand for the child to perform so as to gratify the parents and by the use of severe physical punishment to ensure the child's proper behavior. They also found that abusive parents show an unusually high vulnerability to criticism, disinterest, or abandonment by the spouse or other important person or to anything that lowers their already inadequate self-esteem. Such events create a crisis of unmet needs in the parent, who then turns to the child with exaggerated demand for gratification which the child is unable to meet.[7]

Invariably, looking back at the longitudinal life history, the parents were themselves raised in a similar system.

TREATMENT

As indicated earlier, since the problem is a medical and a social one, a team approach involving physicians and paramedical personnel, social workers and lawyers, in particular, and the whole community, in general, is the best approach to the problem.

Some aspects of the treatment process consist of:

A) Evaluation and diagnosis — Some parents could be so psychologically-disturbed, they would fall into one of the more serious psychiatric diagnosis. B) Therapy—This consist of different forms. Some parents who are psychotic can benefit from medication. Others would need individual psychotherapy. Some of the goals of treatment are to elevate the parents self-esteem and help them understand their pattern of behavior. Others would benefit from group psychotherapy. Some cities with established child abuse programs have groups for such parents called Parents Anonymous. C) In certain cases, drastic measures have to be taken to protect the life of the child. In a series of a large number of cases, about 20 per cent end tragically. In such circumstances, the child has to be removed from the family and placed in a foster home before it is too late.

SUMMARY

This article briefly discusses the child abuse syndrome. The discussion focuses on the following aspects of the syndrome: a) historical; b) statistical; c) legal; d) diagnostic; e) psychodynamic; f) therapeutic.

ACKNOWLEDGEMENT:

I wish to acknowledge the help of Dr. Steve Goudelock, Dr. Hilla Sheriff, and Mrs. Ann Sullivan in the preparation of the article.

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LOCAL ANESTHETIC REACTIONS: PREVENTION, DIAGNOSIS, TREATMENT

LAURIE L. BROWN, M.D.*

The acute toxicity of local anesthetics has long been a subject of interest to anesthesiologists. Most physicians also use these agents frequently. Much has been written on the subject, and several excellent reviews have recently been published.[1,2]

Reactions to local anesthetics vary in manner and degree and most are preventable. In addition to stimulation (or depression) of the central nervous system, and an occasional idiosyncrasy or allergic reaction, toxic doses of all local anesthetics cause depression of the cardiovascular system, lowering of the blood pressure, and sometimes cardiac arrest. But it was not until the development of the Brodie-Walton strain gauge at the Medical University of South Carolina in the early 1950's that actual depression of the contractile force of the heart itself could be measured directly.[3]

Due to the fact that these anesthetic agents are useful in so many ways, it behooves every physician who uses them to be familiar with all phases and degrees of toxic reactions and methods of prevention and treatment. Severe, and even fatal, reactions continue to occur in operating suites or clinic areas in spite of the fact that all drugs, supplies and equipment necessary to abort or treat such a reaction are at one's fingertips. Often the only factors missing are the proper knowledge of their use, and the early recognition of the reaction.

Therefore, it is the purpose of this paper to present several illustrative cases of adverse reactions to local anesthetics and to discuss the etiology and treatment of the reaction in each case. A general method of prevention and treatment will be outlined which will decrease the number of adverse reactions and help to save the lives of some patients who otherwise might be lost.

CASE 1

An elderly, debilitated unconscious patient was brought in a wheelchair from the clinic across the street to the emergency room. Tetracaine (Pontocaine) had been given to rinse the mouth and to swallow in preparation for gastroscopy. Cardiovascular collapse and unconsciousness soon followed, and the patient was pronounced dead shortly after reaching the emergency room. There was no attempt at resuscitation—as we know cardiopulmonary resuscitation today—and death was attributed to an "allergic" reaction due to Pontocaine.

COMMENT

The above case was my introduction, as a medical student, to what are still often called "allergic" reactions. When a true allergic reaction does occur it is ordinarily manifested by hives, wheezing, and/or edema of the pharynx or tracheobronchial tree.[4] In this patient, a large area of mucous membrane was exposed to anesthetic drug, absorption was rapid, a high plasma level was suddenly thrust upon an elderly cardiovascular system, the heart was depressed, and death was the result. Cardiovascular depression is the most common systemic reaction to tetracaine, although central nervous system (CNS) stimulation and convulsions can occur. Absorption of some substances

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through mucous membranes into the vascular system is almost as rapid as if administered intravenously (for example, the sublingual absorption of nitroglycerine) and topically applied anesthetic agents follow this same pattern. *Total dosage must be carefully limited to prevent such rapid absorption and toxic plasma levels when one is using topical drugs.*

CASE 2

A middle-aged man with symptoms of cerebral ischemia was prepared for carotid arteriograms. To "reduce the spasm when the dye was injected" 5-8 ml (50-80 mgm) of 1 per cent Lidocaine (Xylocaine) was injected directly into the common carotid artery. A grand mal seizure immediately followed, no treatment was required, and the patient soon regained consciousness. The procedure was abandoned until a later date.

COMMENT

This unintentional demonstration of the stimulant effect of lidocaine directly on the human brain confirms similar findings in animal experiments. Central nervous system stimulation and convulsions, often followed by depression (or depression alone), is the most common toxic reaction to lidocaine. Myocardial depression and vascular collapse are infrequent except in cases of highly toxic plasma levels, or in those patients who are debilitated or have liver disease. In smaller than myocardial depressant doses, lidocaine has an indirect stimulant action on the heart through the sympathetic nervous system.[5] In fatal reactions the mechanism of death is due to depression of the central nervous system. *For this reason one must use caution and continuous observation in administering this agent intravenously to patients for the treatment of cardiac arrhythmias.*

As observed in this case the convulsions due to lidocaine are usually of short duration, are self-limited, cause little or no obvious myocardial depression, and need little or no treatment except airway support during and immediately following the seizure. But one cannot depend upon a reaction to be self-limited and therefore must always be prepared to treat circulatory collapse if it should follow.

CASE 3

A 45-year-old white female was admitted with a moderate left hemiparesis thought to be due to a cerebral embolus as a result of rheumatic heart disease and mitral stenosis. She had had a similar episode one year previously from which she recovered. Physical examination and laboratory studies were otherwise normal. A brain scan was interpreted to be an infarct in the Rolandic area. Anticoagulation and digitalization were begun, and two days later cardiac catheterization was performed. Fever due to small area of pneumonia developed and on the fourth day she was found in bed cyanotic and with no audible heart beat. She was resuscitated from ventricular fibrillation with external cardiac massage, electro shock, and with oxygen via a hand resuscitator and endotracheal tube. The heartbeat resumed and respirations soon returned to normal. Premature ventricular contractions developed and an intravenous lidocaine drip (1 mgm/ml) was begun. Respirations were soon depressed and she became apneic. The lidocaine was stopped, respirations resumed, and thereafter it was necessary to carefully titrate the flow so as not to again depress respirations. This was repeated several times, and demonstrated depression of respirations with minimal amounts of lidocaine with no other visible effect on the cardiovascular or central nervous systems. Her condition slowly deteriorated, she did not regain consciousness and died 22 days after initial resuscitation.

COMMENT

In this case of a critically ill patient who underwent cardio-pulmonary resuscitation, we see another *pharmacological action of lidocaine—that of brain stem depression.* This likewise has been shown in experimental animals but is not often demonstrated so dramatically in the human except with large overdoses. Hendrix[6] recently reported in *The Journal* the case of a conscious adult male who received a 400 mgm dose of lidocaine within 30 seconds. He manifested not only brain stem depression (respirations slowed to 8/min), but also cortical depression (loss of consciousness), generalized anesthesia (numbness and inability to move), sympathetic stimulation (an increase in heart rate), mild but not undue depression of the myocardium (elimination of PVC's with no fall in blood pressure), and *pos-*

sibly an allergic manifestation (severe lacrimation), although no allergy to lidocaine has been reported.

The following case demonstrates the effects of an equally large amount of lidocaine in an anesthetized, critically ill patient.

CASE 4

A 75-year-old white male with a leaking abdominal aortic aneurysm had undergone emergency aneurysmectomy and bifurcation graft, with little difficulty after control of initial hypotension. After completion of the operation and removal of the endotracheal tube, when semiconscious, he was moved to a stretcher. He developed severe hypotension, and ventricular fibrillation ensued. He was re-intubated, given external cardiac massage and defibrillated with electroshock. He was breathing well and beginning to react again when he suddenly became apneic and a mild, but generalized seizure developed. Upon inquiry it was found that lidocaine (thought to be sodium bicarbonate) was being injected. Almost 50 ml (500 mgm) had been given intravenously within 30-45 seconds. Although the patient was apneic, there was no hypotension, so the seizure was stopped with 50 mgm of thiopental (Pentothal) intravenously. After a few minutes he developed a second episode of ventricular fibrillation, which was again easily defibrillated. He remained in the operating room two hours, until respiration was again adequate and consciousness had returned. The postoperative course was stormy, but he is now in satisfactory condition three years later.

COMMENT

This case indicates that a large dose of lidocaine in a critically ill patient who is depressed from a major operation and anesthesia potentiates the depression already present. Here the cortex was stimulated initially, prior to both severe cortical and brain stem depression (unconsciousness and apnea). As in Case 3, the cardiovascular system suffered no major depression. It is unlikely that the cause of apnea would have been recognized had not seizure activity been evident. *It must be re-emphasized that fatality from lidocaine overdosage is ordinarily due to its depressant effect of the central nervous system, and not of the cardiovascular system.* Sinus standstill has been reported[7] but such cases appear to be rare.

CASE 5

A regional intravenous technique (Bier block) was selected for anesthesia to repair a severed digital nerve and flexor tendon in a lady in her early fifties. She had sustained a laceration of the finger after returning to work following lunch. Two tourniquets were applied to the arm, a catheter placed in an anticubital vein, the extremity exsanguinated by wrapping with an Esmarch bandage, and the upper tourniquet inflated to 300 mm Hg. Lidocaine 30 ml was injected through the catheter and within fifteen or twenty seconds her face began to twitch and a grand-mal seizure followed. Succinylcholine 50 mgm was quickly injected into the intravenous catheter in the opposite hand. Muscle paralysis followed and she was rapidly intubated. Because there was no change in blood pressure or pulse it was decided to proceed, and the operation was performed under general anesthesia with no difficulty. She had no recall of any unpleasant circumstances.

COMMENT

It was thought that a valve proximal to the site of intravenous injection might have been responsible for the ease with which the lidocaine passed into the general circulation beneath a tourniquet inflated to 300 mm Hg. Even though the drug passed through, and was diluted by the pulmonary circulation, the plasma level reaching the brain remained sufficient to cause immediate cerebral stimulation, convulsions, and loss of consciousness. Succinylcholine was selected to stop the muscular activity of the convulsion, and to facilitate endotracheal intubation. No barbiturate was administered to depress CNS activity. Anti-convulsant therapy, if necessary, was furnished by the general inhalation anesthesia which immediately followed. As in this patient, succinylcholine can be used to terminate the muscular component of a drug-induced convulsion, although it has no depressant effect on the central nervous component, as has been shown by the continuation of seizure activity on the electroencephlogram.[8] *Succinylcholine should be used only by those who are thoroughly familiar with the drug, and who are expert in the management of prolonged apnea.*

CASE 6

A 46-year-old Negro male with history of left pleural effusion, emphysema and wheezing was premedicated with Meperidine (Demerol) 100 mgm, atropine 0.6 mgm, and pentobarbital (Nembutal) 100 mgm intramuscularly, in preparation for bronchoscopy. The pharynx and larynx were sprayed with 2 per cent tetracaine and 8-9 ml was then injected into the trachea through the cricothyroid membrane. Apnea, followed by grand mal seizure soon occurred and he was without audible blood pressure, had a very slow and weak femoral pulse, was cyanotic and in severe bronchospasm. External cardiac massage was begun. An endotracheal tube was inserted because of inability to inflate the lungs by positive pressure oxygen with a mask, and a phenylephrine (Neo-synephrine) drip was begun. The seizure was stopped with a small amount of intravenous Pentothal. Succinylcholine 20-30 mgm was given intravenously to help relax accessory muscles of respiration. Aminophyllin, 500 mgm/500 ml was begun as a rapid drip, and epinephrine 0.5 ml of 1:1000 was given I.M. before the bronchospasm began subsiding. Solumedrol was added for latent and prolonged effect. Seizure activity recurred, but was again stopped with 25-50 mgm of Pentothal. Respiratory effort soon began, and within 20 minutes had returned to normal. He was extubated, taken to the recovery room, and was conscious and talking two and one-half hours after the reaction began.

COMMENT

This represents in the most severe form each of three types of local anesthetic reactions—central nervous system stimulation followed by depression, cardiovascular depression, and allergic—all due to a large overdose of pontocaine. Absorption of the drug from the tracheobronchial tree was very rapid, and a toxic plasma level occurred almost simultaneosuly with instillation into the trachea. Due to recurrence of seizure activity after it had once been halted with a barbiturate and while the patient was partially paralyzed with succinylcholine, it is evident that toxic amounts of the anesthetic continued to move from tracheobronchial tree into the vascular system. In other words, due to the continuing high plasma level of pontocaine the convulsion in this instance could not have been "self-limited," and, without treatment, almost certainly would have continued until death.

Succinylcholine was administered in this case only for muscle relaxation during severe bronchospasm, as an aid in positive pressure ventilation. The convulsion was stopped with pentothal. Care was exercised to give only minimum amounts of barbiturate to this patient who had already depressed myocardium so as to cause no further depression of either the heart or the sympathetic nervous system. Very small intravenous doses of short-acting barbiturates are adequate to stop a severe seizure, whereas excessively large amounts are necessary in the preoperative period to prevent seizure activity.

Diazepam (Valium) has been shown to stop seizures caused by local anesthetics in experimental animals,[9] and has recently been reported to stop a seizure in an 8-year-old boy who received a toxic dose of mepivacaine (Carbocaine) intravenously.[10] The rationale for the use of diazepam in the treatment of such reactions—if it continues to prove effective—is that this drug has less depressant effect on the cardiovascular system than do the barbiturates.

PREVENTION

Although only two local anesthetic agents, lidocaine (Xylocaine) and tetracaine (Pontocaine), were responsible for the above reactions, adverse reactions to all such agents can and do occur. *The great majority of adverse reactions are due to excess dosage and consequently are preventible.* A rare patient is allergic to, hypersensitive to, or has an idiosyncrasy to a particular agent, and these reactions may not be preventible, but they should, in most cases, be successfully treated! (I can recall the death of an elderly Negro several years ago, after a few drops of topical anesthetic were applied to the eye. Today a patient with such an idiosyncrasy might well be resuscitated.)

The following simple steps observed *in every case* will help the physician to either prevent a reaction or to recognize

danger signals early enough to abort a severe reaction:

1. *History.* Pay attention to a patient who says he is "allergic" to a drug. He might have a true allergy or be hypersensitive to that drug, or to an additive or preservative.

2. *Observation.* Stay in close contact with the patient through sight, sound and touch, and heed as danger signals any change in color, sensorium, respirations or movement.

3. *Vital signs.* If a large amount of anesthetic agent is used, an assistant should check blood pressure and pulse at regular intervals and note any changes.

4. *Agent and Dosage.* Always use (a) the least amount of (b) the lowest concentration of (c) the least toxic drug to give *adequate* anesthesia for any particular patient. This means smaller doses for children and for patients who are debilitated or have severe liver or kidney disease. In the asthmatic or allergic individual, topical tetracaine should be avoided, or used with utmost care (personal observation). *The package insert usually lists recommended maximum doses of the agent, precautions and contraindications.*

5. *Drugs & Equipment:* Have readily available, with knowledge of their proper use, all drugs necessary for rapid administration, and a method to deliver positive pressure respiration.

6. *Diagnosis & treatment:* Prompt recognition of early signs of an adverse reaction can often lead to minor treatment which can prevent disaster. Table I lists some of the more common manifestations of various types of reactions, and the therapy for each. It will be noted that the end point of all reactions can be the same—cardiac arrest. Also, the patient might go slowly through the various stages of an adverse reaction, stopping at any stage, or the events might progress with catastrophic speed. Consequently, in reactions due to local anesthetic agents, (1) hypotension due to any cause should be promptly treated, and likewise, (2) prolonged convulsions due to either CNS stimulation or hypoxia should be treated.

TABLE I

REACTION	SIGNS & SYMPTOMS	
I. Cardio-vascular depression (Hypotensive)	1. Sighing; change in respiratory rate or depth; "faintness"; bradycardia or tachycardia; nausea; pallor, cyanosis or cool & sweating skin; slurring of speech.	Reassurance; discontinue drug if possible; oxygen by nasal catheter or mask.
	2. Falling blood pressure.	Vasopressor, as a. Neosynephrine, 0.1-0.5 mg. I.V. or 10 mgm/500 ml. b. Aramine 2-5 mgm I.V. or 200 mgm/500 ml. c. Ephedrine 10-25 mgm, I.V.
	3. Respiratory depression.	Respiratory assistance (AMBU, HOPE, etc.) with oxygen or air.
	4. Convulsion (cerebral hypoxia due to cardio-respiratory depression).	1. Respiratory assistance. 2. Short acting barbiturate, I.V., as a. Pentothal, 25+ mgm. b. Secobarbital (Seconal) 50-120 mgm. c. Amobarbital (Amytal) 25+ mgm., or 3. Diazepam (Valium) 5-10 mgm I.V.

	5. Cardiac arrest.	External cardiac massage & resuscitation (epinephrine 1:1000, 0.5 ml I.V. or I.C.; sodium bicarbonate; other drugs as indicated.
II. Central Nervous System Stimulation (Convulsive)	1. Change in sensorium (laughing, giggling, euphoria; agitation; restlessness.)	Reassurance, discontinuance of drug, if possible. Oxygen by mask or catheter.
	2. Muscle twitching; convulsion.	Short-acting barbiturate or valium (as above); respiratory assistance.
	3. Respiratory depression.	Respiratory assistance (as above).
	4. Cardiovascular depression.	Vasopressor (as above).
	5. Cardiac arrest.	External cardiac massage and resuscitation.
III. Allergic	1. Erythema; hives, wheals; circumoral pallor; periorbital or facial edema; tachycardia & occasional hypertension; apprehension.	1. Antihistamine I.M. or I.V. a. Benadryl 10-50 mgm. b. Choice. 2. Aminophyllin 500 mgm/500 ml. slowly PRN. 3. Epinephrine 0.2-0.4 ml 1:1000, S.C. (may repeat q 30 min. PRN). 4. Steroids (for prolonged action). Note: All drugs above as indicated by severity of the reaction.
	2. Laryngeal edema (stridor); bronchospasm, edema (wheezing); possible cyanosis.	Oxygen by mask or catheter in addition to above.
	3. Cardio-vascular depression.	Vasopressor.
	4. Respiratory depression.	Respiratory assistance.
	5. Convulsions (hypoxia).	Short acting barbiturate or valuim, and respiratoy assistance.
	6. Cardiac arrest.	External massage & resuscitation.
IV. Idiosyncrasy	Almost immediate cardio-respiratory collapse.	External cardiac massage & resuscitation.
V. Hypersensitivity	Relatively small amounts of drug cause any of signs and symptoms of I, II, or III above.	Treat as in I, II, or III above.
VI. Psychomotor (not due to drug)	"Faintness", sweating, bradycardia, nausea, hypotension, possible loss of consciousness.	Reassurance, oxygen by mask or catheter, vasopressor if hypotension deemed dangerous (cardiac, cerebrovascular disease, etc.)

SUMMARY

Case histories, discussions and an outline for the prevention and treatment of adverse reactions to local anesthetic agents are presented. Most such reactions can be either prevented or treated successfully. *One preventible fatal reaction in a lifetime of practice is too many!*

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President's Pages



Will Murder Out?

Chaucer's Prioress assures us that "Murder will out, certainly it will not fail." But those of us in medicine and law who are concerned with the investigation of death know differently. There are still questions surrounding President Kennedy's death because his Irish Mafia imperiously rushed his body 1500 miles away for autopsy by a pathologist with practically no training in forensic pathology, despite the fact that Dallas had an excellent Medical Examiner Department with 4 certified forensic pathologists. The true manner of death which may have been murder is not determined in thousands of cases annually in this violent country of ours. The cost to the United States in health, safety, truth, and justice is enormous.

In the next legislative session the South Carolina Medical Association, in conjunction with the South Carolina Bar Association, the South Carolina Society of Pathologists and other interested groups, hopes to get a Medical Examiner Act passed through the South Carolina Legislature. This is nothing new. For the past 12 years the attempt has been unsuccessful. If such an act is passed, South Carolina will leave that small minority of only 8 states who do not have a medical examiner system.

The coroner is a legacy that goes back to the early stages of English history. William the Conqueror, that brilliant, ruthless, and grasping king, established the office of coroner on a firm footing in order to protect his interests. In those days there was a considerable superstition concerning the weapon of death. It was called the deodand, which means "given to God." The superstitious people of that age would not touch it, so it was given to the church. Of course, if a man were killed by a heavy stone, there was little value to the deodand. On the other hand, if he were run over by a coach and four horses, the deodand became extremely valuable. William the Conqueror disliked seeing any money going to the church that he might get himself; therefore, he charged a person to confiscate the deodand and sell it for the benefit of the crown. This man was called a coroner because he represented the king. He also took charge of the confiscated property of outlaws and any buried treasure that was found. Gradually his duties were extended to include the investigation of the causes of death, but this was a secondary matter.

Unfortunately in many parts of the United States, the investigation of death is still a secondary matter. Although many well intentioned coroners exist, several others offer for this elective office because of the benefits which may accrue to them in their occupa-



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1. Demeulenaere, L.: Action du R 1132 sur le transit gastro-intestinal, Acta Gastroent. Belg. 21:674-680 (Sept.-Oct.) 1958.

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IMPORTANT INFORMATION: *This is a Schedule V substance by Federal law; diphenoxylate HCl is chemically related to meperidine. In case of overdosage or individual hypersensitivity, reactions similar to those after meperidine or morphine overdosage may occur; treatment is similar to that for meperidine or morphine intoxication (prolonged and careful monitoring). Respiratory depression may recur in spite of an initial response to Nalline® (nalorphine HCl) or may be evidenced as late as 30 hours after ingestion. LOMOTIL IS NOT AN INNOCUOUS DRUG AND DOSAGE RECOMMENDATIONS SHOULD BE STRICTLY ADHERED TO, ESPECIALLY IN CHILDREN. THIS MEDICATION SHOULD BE KEPT OUT OF REACH OF CHILDREN.*

Indications: Lomotil is effective as adjunctiva therapy in the management of diarrhaa.

Contraindications: In children less than 2 years, due to the decreased safety margin in younger age groups, and in patients who ara jaundiced or hypersensitive to diphenoxylata HCl or atropina.

Warnings: Use with caution in young children, becausa of variable responsa, and with extrema caution in patients with cirrhosis and other advancad hepatic diseasa or abnormal liver function tasts, because of possible hepatic coma. Diphenoxylate HCl may potentiate the action of barbiturates, tranquilizers and alcohol. In theory, the concurrent use with monoamine oxidase inhibitors could precipitate hypertensive crisis.

Usage in pragnancy: Weigh tha potential benefits against possible risks bafora using during pregnancy, lactation or in women of childbearing aga. Diphenoxylate HCl and atropina are secfeted in the breast milk of nursing mothers.

Precautions: Addiction (dependency) to diphenoxylate HCl is theoretically possible at high dosage. Do not exceed recommended dosages. Administer with caution to patients receiving addicting drugs or known to ba addiction prone or having a history of drug abusa. The subtherapautic amount of atropine is addad to discourage daliberata ovardosaga; strictly observa contraindications, warnings and precautions for atropine; use with caution in children since signs of atropinism may occur ayan with tha recommandad dosaga.

Adversa reactions: Atropine effects includa drynass of skin and mucous membranes, flushing and urinary ratention. Othar sida affects with Lomotil include nausea, sedation, vomiting, swelling of the gums, abdominal discomfort, respiratory dapression, numbness of tha extremitias, headacha, dizziness, depression, malaisa, drowsiness, coma, lathargy, anoraxia, restlessnass, euphoria, pruritus, angionaurotic edema, giant urticaria and paralytic ilaus.

Dosage and administration: Lomotil is contraindicated in children less than 2 years old. Usa only Lomotil liquid for children 2 to 12 years old. For ages 2 to 5 years, 4 ml. (2 mg.) t.i.d.; 5 to 8 years, 4 ml. (2 mg.) q.i.d.; 8 to 12 years, 4 ml. (2 mg.) 5 times daily; adults, two tablets (5 mg.) t.i.d. to two tablets (5 mg.) q.i.d. or two regular teaspoonfuls (10 ml., 5 mg.) q i.d. Maintenance dosaga may be as low as ona fourth of tha initial dosage. Make downward dosage adjustmant as soon as initial symptoms are controlled.

Overdosage: Keep the medication out of the reach of children since accidental overdosage may cause severe, even fatal, respiratory depression. Signs of overdosage include flushing, lethargy or coma, hypotonic reflexes, nystagmus, pinpoint pupils, tachycardia and respiratory dapression which may occur 12 to 30 hours aftar overdose. Evacuata stomach by lavage, astablish a patant airway and, when necessary, assist respiration machanically. Usa a narcotic antagonist in severe raspiratory daprassion. Observation should extend over at least 48 hours.

Dosage forms: Tablets, 2.5 mg. of diphenoxylate HCl with 0.025 mg. of atropina sulfate. *Liquid,* 2.5 mg. of diphenoxylata HCl and 0.025 mg. of atropina sulfata per 5 ml. A plastic droppar calibrated in increments of ½ ml. (total capacity, 2 ml.) accompanies aach 2-oz. bottla of Lomotil liquid.

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Based on a review of this drug by the National Academy of Sciences – National Research Council and/or other information, FDA has classified the indications as follows:

Possibly effective: For relief of upper respiratory tract congestion and hypersecretion associated with vasomotor rhinitis and allergic rhinitis, and for prolonged relief.

Lacking in substantial evidence of effectiveness: For relief of nasal congestion and hypersecretion associated with the common cold and sinusitis.

Final classification of the less-than-effective indications requires further investigation.

Contraindications: Hypersensitivity to any component; concurrent MAO inhibitor therapy; severe hypertension; bronchial asthma; coronary artery disease; stenosing peptic ulcer; pyloroduodenal or bladder neck obstruction. Children under 6.

Warnings: Caution patients about activities requiring alertness (e.g., operating vehicles or machinery). Warn patients of possible additive effects with alcohol and other CNS depressants.

Usage in Pregnancy: In pregnancy, nursing mothers and women who might bear children, weigh potential benefits against hazards. Inhibition of lactation may occur.

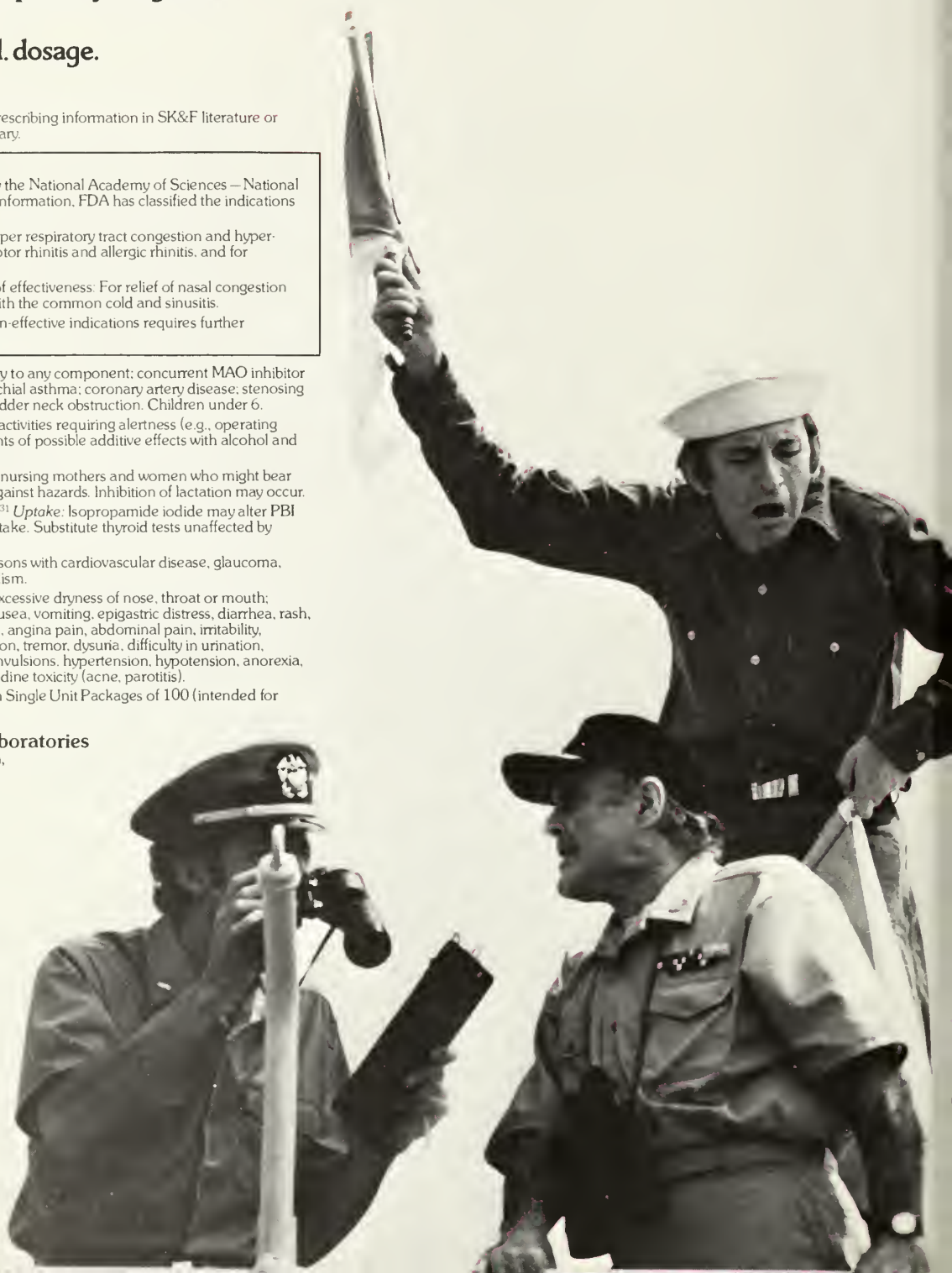
Effect on PBI Determination and I^{131} Uptake: Isopropamide iodide may alter PBI test results and will suppress I^{131} uptake. Substitute thyroid tests unaffected by exogenous iodides.

Precautions: Use cautiously in persons with cardiovascular disease, glaucoma, prostatic hypertrophy, hyperthyroidism.

Adverse Reactions: Drowsiness, excessive dryness of nose, throat or mouth; nervousness; or insomnia. Also, nausea, vomiting, epigastric distress, diarrhea, rash, dizziness, weakness, chest tightness, angina pain, abdominal pain, irritability, palpitation, headache, incoordination, tremor, dysuria, difficulty in urination, thrombocytopenia, leukopenia, convulsions, hypertension, hypotension, anorexia, constipation, visual disturbances, iodine toxicity (acne, parotitis).

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tion such as running an ambulance service, funeral home or automobile wrecker service. The coroner system in practice has shown itself to be entirely inadequate for the duties it must perform. The incumbent of such an office labors under heavy disadvantages; so that even with the best intentions, he is hampered with his work. The laws which regulate his duties lack precision, especially in defining the kinds of cases which come under his jurisdiction. Like most minor elective officials he is subject to pressure from politicians and influences which rarely work for disinterested ends. He is usually crippled by a lack of funds, so that there is little chance for him to improve his organization. Although a coroner may try his best, his lack of medical knowledge frequently leads to overlooking the cause of death. Several years ago in a county surrounding Greenville County, an elderly woman was found dead in her yard. The coroner had signed out the death as caused from a stroke when the undertaker preparing the body found a small amount of blood from a wound in the back of the head in the depths of her long hair. It later turned out that she had been struck in the head with an ax which was found in a remote corner of her garden. Many similar cases could be cited. The medical examiner may not only help justice but also protect the living when he discovers causes of death from toxic substances or dangerous working conditions that may affect other peoples lives if not discovered.

Our state badly needs a medical examiner system. We rank second behind Georgia in the most number of murders per hundred thousand population. Two years ago, Greenville County with a population of 250,000, had more murders than Metropolitan London with more than 50 times Greenville's population. In years past, murder was usually committed by a friend or relative who either confessed or committed the crime in the presence of many witnesses. In recent years many more of these murders are committed during a felony by a stranger who leaves very few clues. Let us help make South Carolina a safer place for our families and children.

Donald G. Kilgore, Jr., M.D., President
South Carolina Medical Association

The Journal of the South Carolina Medical Association

50 YEARS AGO

November, 1924

The Medical College centennial was described as a great success. Mentioned were the presentation of papers, tableaux, the unveiling of a tablet to the memory of Dr. F. L. Parker, a former dean, and the well attended scientific clinics. The death of Dr. Joseph J. Watson of Columbia was noted.

Editorials

A Pair of Paradoxes

1. A recent Louis Harris poll determining the respect Americans have for the leaders of various institutions found that, by and large, Americans do not have a great deal of respect for any of the leaders today. But the top rated leaders were those of the medical profession, with the highest approval rate — 50 per cent — of all the institutions rated. The U. S. Congress came in at the very bottom of the field with only 19 per cent of the Americans approving of Congressional leadership.

Yet, it appears imminent and unavoidable that America's medical care system, whose leaders are the most trusted and respected of any in the nation, will be taken over and directed by Congress, whose leaders do *not* have the confidence of the people. And we are supposed to live in a Democracy, where the people's voice is supposed to be overriding. It just does not make sense.

2. Medicare and Medicaid almost daily grow and extend their coverage. Blue Cross-Blue Shield takes over coverage of all state employees and continues its hard sell generally. Other commercial health insurance carriers propagate and proliferate. Patients arrive at our offices with sheaves of insurance forms of various colors, sizes, and complexities, sometimes more concerned about getting the forms filled out than getting their ailments treated. Most doctors hire an employee to do nothing but fill out insurance forms. We rarely miss an opportunity to complain about the important place that handling third party payments has taken in our professional lives.

But, just think back five or six years, before Medicare and Medicaid or 10 or 12 years, before extensive insurance coverage. Back in those days, the doctors were not the flashy dressers we are today. Doctors did not have three or four big cars in the family or have two and three homes like many do today. In those old days it was rare to see a doctor with a large stock portfolio or extensive real estate holdings or big tax problems, but it is not rare any more. It has not always been that doctors were the biggest supporters of our state's great (and not so great) athletic teams and major financial supporters of our churches.

Yes, we are quick to point out that we have to pay an employee to do nothing but fill out insurance forms, but we are not so alert to mention having bookkeepers to count our money and take it to the bank, or about having tax attorneys, account executives, and investment counselors.

Yes, we all complain loudly about inconveniences caused by third party payers, but it certainly has made the practice of medicine prosperous. Most of us do not practice medicine just for money, but most of us have not been turning it down lately. Money certainly is not the most important thing in the world, but it surely does soothe the nerves to have some around.

3. Those alert readers who have continued this far in considering this "Pair of Paradoxes" may have noted a third paradox in this recitation. The first paradox abhorred the interference of outside parties into medicine while the second paradox tolerated or even welcomed such a profitable interference. That is the third paradox. But that is the way life is — very complicated!

EEK

SURGERY AT THE GENERAL INFIRMARY AT LEEDS UNDER THE BRITISH HEALTH SYSTEM

WILLIAM H. PRIOLEAU, JR., M. D.*

I had the privilege of working as the senior registrar in thoracic surgery at the General Infirmary at Leeds (LGI) for the year 1972-1973. As many people have asked about the experience, I thought a few reflections on the subject may be of interest.

THE INFIRMARY

The Infirmary is a 1,000 bed hospital with all specialties represented. Designed by the same architect who later designed St. Pancras Railroad Station in London, it is an architecturally unattractive stone building. The people of Leeds are told their dreary hospital was a warm-up for the London station, and there would appear to be some basis for this. The central part of the hospital, built in the 1840s, has a long entrance hall—high ceilings, always dark and cold.

In the entrance hall are plans for renovation which are not taken seriously. In London where construction sometimes takes place in a hurry, it took 36 years to get the Charing Cross Hospital from the drawing boards to a functioning hospital, and nobody really expects Leeds to break that record.

The big open wards of the hospital resemble old Roper in Charleston. There are high ceilings, wood floors, and only a curtain between the beds. Each ward has one or two single rooms for isolation purposes or private patients. Equipment is generally adequate for the satisfactory practice of medicine.

THE DEPARTMENT OF SURGERY

The Department of Surgery was made prominent by Lord Moynihan about the turn of the last century. One is reminded of him daily by a large bust located in the center of a stairwell in the entrance hall. It took Dr. Edward F. Parker of Charleston to inform the junior house staff with whom he was making rounds one day that the correct pronunciation of Moynihan is munyan.

Under the direction of Mr. John Cedric Goligher in general surgery and Mr. Geoffrey H. Wooler in thoracic surgery, the recent history of the Surgery Department has been distinguished. There have been many firsts for Britain and, in some cases for the world. At Leeds was done the first jejunal interposition for esophageal lesions, the first mitral valve repairs for incompetence, the first successful resection of ventricular aneurysm, and probably others. Mitral valve repair is known in Britain as the Wooler procedure.

Mr. Wooler and Mr. Marian I. Ionescu, second in charge in the thoracic division, have a list of former registrars of which any professor would be proud. They are now represented all over the world with the greatest concentration on the European continent. Among the several Americans trained in Leeds is Dr. W. Gerald Austen, Director of Surgery at the Massachusetts General Hospital.

Currently, research projects in the surgery department involve hiatus hernia, pectus excavatum, cardiac valve prostheses, and technique of vagotomy. A textbook of cardiac surgery is being edited in Leeds and promises to be a valuable addition to the literature in this field. Many reports of the studies in Leeds appear in American journals. American journals are widely read in Britain. In addition,

*From the Departments of Surgery of The Medical University of South Carolina and Roper Hospital, Charleston, South Carolina

the junior staff, who write many of the papers from Leeds, want publications in the United States for the day when they might apply for positions in this country.

OPERATING THEATRES AND HOSPITAL WARDS

The operating theatres run smoothly as a rule and into the evening if necessary. There are four thoracic consultants who divide their time between two hospitals in Leeds. Each has two or three operating sessions (a half day of operating time) a week in LGI.

The attire of operating room personnel is like that in this country but for the footwear. To every surgeon and nurse is assigned a pair of boots or clogs depending on individual preference. At the end of the day, the boots and clogs are scrubbed by a porter and put back on the shelf for use the next day.

In Britain there are no nurse anesthetists, but there are specially trained EKG technicians who keep a minute to minute check on patients as the physician anesthetists don't necessarily stay in the room in long cases. At the beginning of all thoracic procedures, the surgeon personally checks to see that on the Mayo stand are labeled syringes with all the drugs that might be needed in an emergency. A specially made indwelling needle is left in the root of the aorta for the duration of operations on unstable patients for the purpose of administering drugs.

At the end of a thoracic operation the patient is returned to the intensive care unit which is some ten or twelve years old and supposedly the first established in Britain. The hospital matron (director of nursing) did not approve of the innovation of intensive care nursing and to this day has not paid the ward a visit. Many of the older respirators and monitoring devices are British and the more recent replacements American. The care of the patients in the intensive care unit is excellent, and it is a pleasant place to work.

The work on the wards is administered by a sister (senior nurse). Her jurisdiction may cover such matters as relating to families instead of a physician, directing the junior house staff, and determining what patients are to be admitted on a certain day. In many instances these matters fall to the sister if the consultant (attending physician) is not available.

THE HOUSE STAFF

Generally speaking, the house staff is more numerous and not worked as hard as in this country. The housemen and registrars perform the same duties as interns and residents in this country. The work day usually begins about eight or nine o'clock and is usually over about five or six o'clock.

Breakfast in the house staff mess is served from eight to nine a.m. All meals are served seated, and with good service. There is a choice on the menu, and the food is acceptable, especially when one considers the modest prices. The house staff mess is subsidized by the government. Within the hospital the house staff has a bar where three types of beer are on tap 24 hours a day.

The equivalent to American specialty board examinations are the fellowship examinations and are taken while still a junior registrar. Upon passing the examinations the junior registrar becomes a member of the Royal College of Physicians or Surgeons, as the case may be. He also becomes a candidate for a senior registrar's position. The number of senior registrars is limited by the National Health Service (NHS). For the senior registrar there is the almost automatic promotion to consultant when a consultant's position becomes available. Being addressed Mr. is a distinction for the registrar who passes the fellowship examinations in surgery.

Passing the fellowship examinations does not mean moving ahead for everyone. The senior registrar and consultant posts are customarily filled by English-born white subjects. It is difficult for an immigrant to obtain an appointment. A capable Indian or Pakistani may pass his fellow-

ship examinations only to become a permanent research or clinical assistant with a senior registrar's pay (3,500 pounds) but not the position of senior registrar and with no future in academic or specialty medicine. Such a person may eventually give up hospital connections after many years of specialty training and become a general practitioner in the NHS. A general practitioner in Britain has no professional privileges in the hospital. He relinquishes control to the consultants when his patient is in a hospital.

In recent years there have been increasingly large numbers of Indians and Arabs filling the posts of lesser importance in the NHS. At LGI there are three consultant cardiologists, all British born caucasian. The opinions of value, however, often come from foreign born clinical assistants. Without a bright future in either academic work or private practice, it is no wonder that so many people who are stuck in house staff or equivalent positions with low pay desire to emigrate.

CONSULTANTS AND PRIVATE PRACTICE

A consultant may stay full-time with a university or hospital and have an income between 4,000 and 8,000 pounds, depending on seniority. Alternatively, a consultant may divide his time between the university and private practice and have a greatly augmented income. While private practitioners in the specialties make a good living, they are not numerous, but are found for the most part in the larger cities where they may be successful. There are some truly wealthy physicians in Leeds, but most, if not all, of them inherited their wealth.

The income of full-time university consultants does not appear to be in line with incomes of prominent business people and lawyers who seem to be more prosperous. Nor is the income of full-time consultants up to that of successful general practitioners. The income of general practitioners is also government regulated but varies with the number of individuals in the general practitioner's district whom he takes care of when they call for his services.

PROBLEMS WITH WELFARE SERVICES

At the base of the British medical system is an extensive welfare program. Funded through government taxes, the government assumes the entire hospital and professional expenses in most cases. The government even supplies the transportation home after an illness. This is often accepted even if it means staying in the hospital a day longer if the transportation service is not immediately available when the patient is ready for discharge. The welfare services may go to extremes. In the thoracic surgery clinic, a patient may claim a free lunch if he is kept waiting for clinic all morning and will not be seen until afternoon.

The financial burden of catastrophic illness is not a problem for the British subject. For this the people are grateful. Popular in the British press are stories of hardship in the United States relating to the cost of medicine in prolonged and serious illnesses.

What the British pay for the welfare services in terms of taxes and inefficiency is hard to determine. To this observer, problems pertaining to the welfare services related to most facets of medicine—providing medical services, hospital efficiency, morale of consultants, attraction to medicine of talented individuals, costs of duplicating services when patients take out private insurance, etc. The system lacks vitality.

The patient stays in the hospital a long time. Hospital utilization committees must exist in a setting such as this, but they are not apparent to the registrars in Leeds. For an average cardiac operation in the United States, a patient is admitted two days before operation and is discharged ten days after operation. In Leeds, they are admitted five days before

operation and are discharged three weeks after operation.

With flexible and prolonged stays for various illnesses, a consultant is in a position to organize his service to an amazing degree. He may keep the beds allotted to him filled. When he wishes to admit a patient, he discharges one of his old patients just before the new one arrives. In this way he keeps his beds filled with patients of interest to him. This maneuver also reduces the beds available for emergencies. The rate of admissions may slow down and the waiting list become long. It is not unheard of for a patient to wait a year for certain services.

A consultant may be able to stake out an area of his discipline for preferential treatment to the detriment of patients whose diseases are of less interest. If a patient needs a heart valve, it can be worked into the operative schedule within two months, but if the patient needs a lung biopsy he may be put on the waiting list of a peripheral hospital. In this country these problems can also exist where physicians are busy, but with each patient paying a proportionate part of the private practitioner's income, the inequities do not seem to be nearly so great. The private patient gets more prompt, personal attention regardless of whether his disease is of particular interest.

Many consultants are not happy. As already mentioned, salaries are not good. Changes in the operation of the hospital take place at a snail's pace. Committees seem to limit the scope of one's work. Adequate funds are seldom available for research work.

The consultants resent government controls. Last year many threatened not to pay dues to their parent organization, but this revolt was short-lived when they learned that their legal position and liability insurance coverage was in jeopardy if they did not pay their dues.

In the face of these problems, the attraction of bright young men does not appear to be strong, at least in the Leeds district. While classes in medical schools are enlarging, the number of women has increased to 50% and the majority of the males are foreign born, usually from India or Arab countries.

The people generally accept the welfare system as being essential, and it would be impossible politically to roll back any aspect of the program. Yet the more educated citizens see the disadvantages clearly. To cope with this, private insurance programs are becoming more popular. The private medical service that a patient gets through insurance is supposedly offered through the NHS but may be hard to obtain. This is particularly true for the more common ailments.

The British people are poor. They often pay twice for medical services. They pay for the NHS through their taxes, and private savings may go to an insurance policy so that medical services can be arranged on a fee for service basis when it is really needed and not readily obtained through the NHS.

MINUTES
SPECIAL CALLED MEETING
VOTING MEMBERS OF COUNCIL
SOUTH CAROLINA MEDICAL ASSOCIATION
SUNDAY, JULY 28, 1974

A special called meeting for voting members of the SCMA Council was held on Sunday, July 28, 1974 at the Association offices, 1508 Washington Street, Columbia, S. C. The Chairman, Dr. Waitus O. Tanner, called the meeting to order at 11:20 a.m. Members present were Dr. Donald G. Kilgore, Jr., Dr. C. Tucker Weston, Dr. D. Strother Pope, Dr. J. Ernest Lathem, Dr. Waitus O. Tanner, Dr. Richard Johnston, Dr. George Dawson, Dr. John C. Hawk, Jr., Dr. Harrison Peeples, Dr. William A. Klauber, Dr. J. Hal Jameson, Dr. Halsted M. Stone, Dr. J. D. Gilland, Dr. Michael Holmes, Dr. Randolph Smoak, Jr., Dr. Euta Colvin, and Dr. Harold P. Hope. Staff members present were Mr. Charles Johnson and Mrs. Lucille Klemensky.

The meeting was opened with a prayer by Dr. Harold P. Hope.

The first order of business was the appointment of a 2nd Alternate Delegate to the AMA.

Due to the resignation for personal reasons of Dr. Thomas Parker, Dr. John C. Hawk, Jr., was advanced to the position of Senior AMA Delegate designee, Dr. Harrison Peeples was advanced to the position of Junior Delegate designee, and Dr. C. Tucker Weston was advanced to the position of Senior Alternate Delegate designee. Leaving the position of Junior Alternate Delegate designee open.

Nominations to fill the position of Junior Alternate Delegate designee were called for and the following persons were nominated:

Dr. Kenneth N. Owens of Aiken
Dr. William Perry of Chesterfield
Dr. Randolph Smoak, Jr., of Orangeburg
Dr. Boyce Tollison of Easley

A motion to close the nominations was made, seconded, and carried. Nominations were declared closed and the Vice Chairman of the Council was designated as teller to count ballots.

A vote was called for.

Since the first vote did not result in a majority for any of the four candidates, a vote was taken between the two receiving the largest number of votes—William Perry and Randolph Smoak. The second vote resulted in the election of William Perry as Junior Alternate Delegate designee.

The second item under consideration concerned the employment of Mr. M. L. Meadors.

By report dated July 11, 1974, the Executive Committee recommended terminating the employment of Mr. M. L. Meadors and placing him on leave of absence, while continuing pension benefits so that he would receive 100% retirement benefits. A letter was received from Mr. Meadors dated June 21, 1974 which set forth his contentions as to his alleged employment contract with the South Carolina Medical Association.

A motion was made and seconded to adopt the recommendation of the Executive Committee. Dr. Weston was appointed a parliamentarian. No time limit was set for discussion. A lengthy discussion followed.

A motion was made, seconded and carried to vote by secret ballot. Dr. Gilland and Dr. Colvin were appointed as tellers to count ballots.

An amendment to the original motion was made, seconded and carried to pay Mr. Meadors a sum monthly equivalent to the sum monthly which would be due him from the South Carolina Medical Association Retirement Fund, payments to begin immediately and continue until his retirement became effective on July 1, 1976, and the Association will continue to pay his present personal Blue Cross-Blue Shield premiums until July 1, 1976.

The question on the original motion was then called for and the original motion as amended was adopted.

A motion was made, seconded and carried that Mr. Meadors be informed by letter of the results of the action taken by this body.

Drs. Johnston, Colvin, Klauber, Dawson and Holmes requested that their votes be recorded as opposed to the adoption of the motion.

There being no further business, the meeting was adjourned.

STAFF PHYSICIAN

Large, Modern Industrial Complex

This position, with the world's leading designer and manufacturer of ships, affords the industrially-oriented M.D. an outstanding professional opportunity.

You will be a key member of our well-equipped medical center . . . boasting extensive lab facilities in clinical medicine & environmental life sciences . . . as well as a large, professional staff. Your involvement will include performing clinical examinations of employees, treating industrial injuries and occupational diseases. U.S. citizenship required. In addition to an attractive compensation package we offer the benefit of a regular schedule and the scenic beauty of Newport News, Virginia—well known for its exceptional historical, educational, recreational and cultural facilities.

If interested in this outstanding opportunity, send curriculum vitae to Gerald O. Vaughn, Professional Recruiter — Salaried Employment, Newport News Shipbuilding, Newport News, Virginia 23607 . . . . or call (804) 247-4878.

Rondomycin®
(methacycline HCl)

CONTRAINDICATIONS: Hypersensitivity to any of the tetracyclines.
WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**
Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)
Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.
Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)
All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.
Tetracyclines are present in milk of lactating women taking tetracyclines.
To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.
Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.
PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.
In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.
Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.
In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).
Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.
Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.
ADVERSE REACTIONS: Gastrointestinal (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.
Skin: maculopapular and erythematous rashes; exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).
Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).
Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.
Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.
Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.
Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands, no abnormalities of thyroid function studies are known to occur.
USUAL DOSAGE: Adults—600 mg daily, divided into two or four equally spaced doses. More severe infections: an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, 'Rondomycin' (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule. 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.
For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.
Eaton Agent pneumonia: 900 mg daily for six days.
Children—3 to 6 mg/lb/day divided into two to four equally spaced doses.
Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.
Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.
In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.
In streptococcal infections, a therapeutic dose should be given for at least 10 days.
SUPPLIED: 'Rondomycin' (methacycline HCl): 150 mg and 300 mg capsules; syrup containing 75 mg/5 cc methacycline HCl.

Before prescribing, consult package circular or latest PDR information.

Rev. 6/73

WALLACE LABORATORIES
CRANBURY, NEW JERSEY 08512



When the focus is on bronchitis due to susceptible strains of *H. influenzae* and pneumococci*

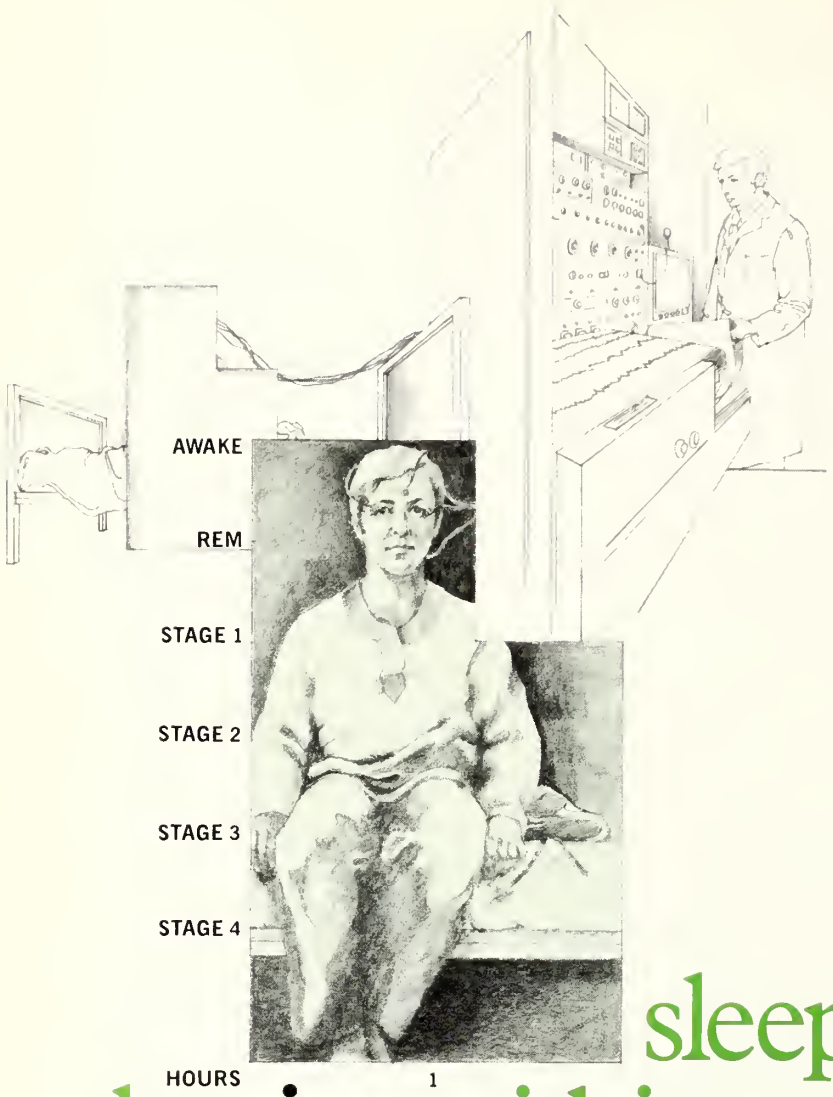
Rondomycin® 300 mg. Capsules

[methacycline HCl]

Delivers from the very first dose:

Studies show that after the first dose serum levels rapidly rise above minimum *in vitro* inhibitory concentrations

*Since many strains are known to be resistant, routine sensitivity testing is recommended.



sleep begins within 17 minutes, on average ...

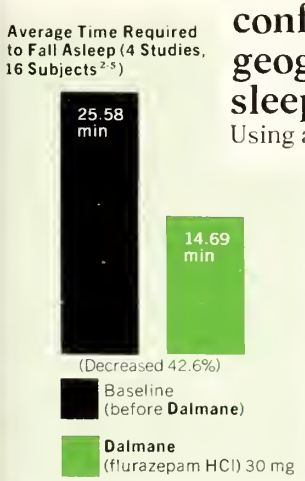
an initial benefit of

Dalmane®

(flurazepam HCl)

proved by a 22-night clinical study of insomnia patients in the sleep research laboratory and at home[1]

Three insomnia patients selected for difficulty falling asleep were administered Dalmane (flurazepam HCl) 30 mg for 14 consecutive nights. Placebo was given for four nights prior to and four nights after Dalmane. Physiologic tracings on Dalmane nights 1-3 showed sleep induction time averaged 13.90 minutes; on Dalmane nights 12-14, 18.80 minutes. Combined average for the 6 monitored drug nights was 16.35 minutes.[1]



confirmed by clinical studies in four geographically separated sleep research laboratories[2-5]

Using a 14-night protocol involving eight insomniac and eight normal subjects, four studies confirmed the sleep-inducing effectiveness of Dalmane (flurazepam HCl) and the reproducibility of this response. On average, one 30-mg capsule induced sleep within 17 minutes. In all these studies, Dalmane induced sleep rapidly, reduced nighttime awakenings, and provided 7 to 8 hours of sleep without repeating dosage[2-5]

Dalmane (flurazepam HCl) induces and maintains sleep, with relative safety

Dalmane is generally well tolerated; morning "hang-over" has been relatively infrequent. While dizziness, drowsiness, lightheadedness and the like have been noted most often, particularly in the elderly and debilitated, physicians should be aware of the possibility of more serious reactions, as noted below.

Before prescribing Dalmane (flurazepam HCl), please consult Complete Product Information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; and in acute or chronic medical situations requiring restful sleep. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended.

Contraindications: Known hypersensitivity to flurazepam HCl.

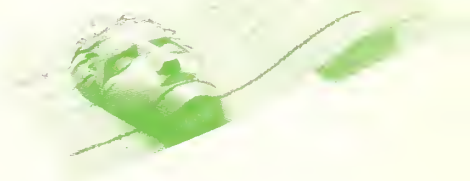
Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Use in women who are or may become pregnant only when potential benefits have been weighed against possible hazards. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated, initial dosage should be limited to 15 mg to preclude oversedation, dizziness and/or ataxia. If combined with other drugs having hypnotic or CNS-depressant effects, consider potential additive effects. Employ usual precautions in patients who are severely depressed, or with latent depression or suicidal tendencies. Periodic blood counts and liver and kidney function tests are advised during repeated therapy. Observe usual precautions in presence of impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported were headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins and alkaline phosphatase. Paradoxical reactions, *e.g.*, excitement, stimulation and hyperactivity, have also been reported in rare instances.

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



when restful sleep is indicated

Dalmane®
(flurazepam HCl)

One 30-mg capsule *h.s.* — usual adult dosage (15 mg may suffice in some patients).
One 15-mg capsule *h.s.* — initial dosage for elderly or debilitated patients.

- induces sleep within 17 minutes, on average
- reduces nighttime awakenings
- sustains sleep 7 to 8 hours, on average, without repeating dosage

REFERENCES: 1. Kales A, *et al*: *Arch Gen Psychiatry 23*:226-232, Sep 1970
2. Karacan I, Williams RL, Smith JR: The sleep laboratory in the investigation of sleep and sleep disturbances. Scientific exhibit at the 124th annual meeting of the American Psychiatric Association, Washington DC, May 3-7, 1971
3. Frost JD Jr: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ
4. Vogel GW: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ
5. Dement WC: Data on file, Medical Department, Hoffmann-La Roche Inc, Nutley NJ

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The Role of the Detail Man

Opinion & Dialogue

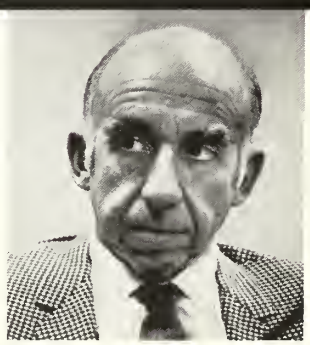


Dr. Willard Gobbell
Family Physician
Encino, California

"I may be prejudiced, but I am very much in favor of the detail men I meet. Most of them are knowledgeable about the drugs they promote and can be a great help in acquainting me with new medication."

Family Physician's Perception

I think that most general practitioners in this area feel as I do about the detail man. Over the years I have gotten to know most of the men who visit me regularly and they in turn have become aware of my particular interests and the nature of my practice. They, therefore, limit their discussion as much as possible to the areas of interest to me. Since I usually see the same representative again in future visits, it is in his best interest to supply me with the most honest, factual, as well as up-to-date information about his products.



Dr. Jeremiah Stamler
Chairman
Department of Community Health and Preventive Medicine, and Dingman Professor of Cardiology
Northwestern University Medical School

"In the total picture of dealing with health problems in this country, there is a potential for detail men to play a meaningful role."

The Positive Influence

My contact with representatives and salesmen of the pharmaceutical industry is the type of contact that people in a medical center, research people, and academic people have and that's in all likelihood on a somewhat different level from that of the practicing physician.

Let me touch on how I personally perceive the role of the sales representative. These men reach large numbers of health professionals. Thus they could be—and at times actually are—disseminators of useful information. They could consistently serve a real educational function in their ability to discuss their products.

At present they do distribute printed material, brochures and pamphlets—some of it scientifically sound and therefore truly useful—as well as some excellent films produced by the pharmaceutical industry. When they function in this

s He a Source of Information?

Yes, with certain reservations. he average sales representative as a great fund of information bout the drug products he is re-ponsible for. He is usually able to nswer most questions fully and ntelligently. He can also supply eprints of articles that contain a reat deal of information. Here, o, I exercise some caution. I usu-lly accept most of the statements nd opinions that I find in the apers and studies which come om the larger teaching facilities. goes without saying that a physi-ian should also rely on other ources for his information on harmacology.

raining of Sales Representatives

Ideally, a candidate for the osition as a sales representative f a pharmaceutical company hould be a graduate pharmacist ho has a questioning mind. I don't ink this is possible in every case, nd so it becomes the responsibility of the pharmaceutical company to train these individuals comprehensively. It is of very great importance that the detail man's knowledge of the product he represents be constantly reviewed as well as updated. This phase of the sales representative's education should be a major responsibility of the medical department of the pharmaceutical company.

I am certain that most of these companies take special care to give their detail men a great deal of information about the products they produce—information about indications, contraindications, side effects and precautions. Yet, although most of the detail men are well informed, some, unfortunately, are not. It might be helpful if sales representatives were reassessed every few years to determine whether or not they are able to fulfill their important function. Incidentally, I feel the same way about periodic assessments of everyone in the health care field, whether they be general practitioners, surgeons or salesmen.

Value of Sampling

I personally am in favor of limited sampling. I do not use sampling in order to perform clinical testing of a drug. I feel that drug testing should rightly be left to the pharmacology researcher and to the large teaching institutions where such testing can be done in a controlled environment.

I do not use samples as a "starter dose" for my patients. I do, however, find samples of drugs to be of value in that they permit me to see what the particular medication looks like. I get to see the various forms of the particular medication at first hand, and if it is in a liquid form I take the time to taste it. In that way I am able to give my patients more complete information about the particular medications that I prescribe for them.

---

pacity they are indeed useful; rticularly in the fact that they sseminate broadly based educa-nal material and serve not just s "pushers" of their drugs.

he Other Side of the Coin

Obviously, the pharmaceuti-al companies are not producing all tis material as a labor of love— ey are in the business of selling oducts for profit. In this regard te ambitious and improperly moti-ted sales representative can ert a negative influence on the acticing physician, both by pre-nting a one-sided picture of his oduct, and by encouraging the actitioner to depend too heavily drugs for his total therapy. In ese ways, the salesman has often storted objective reality and ndermined his potential role as an ducator.

he Industry Responsibility

Since the detail man must be information resource as well as representative of his particular harmaceutical company, he ould be carefully selected and thoroughly trained. That training, perforce, must be an ongoing one. There must be a continuing battle within and with the pharmaceutical industry for high quality not only in the selection and training of its sales representatives, but also in the development of all of its promotional and educational material.

The industry must be ready to accept constructive as well as corrective criticism from experts in the field and consumer spokesmen, and be willing to accept independent peer review. The better educated and prepared the salesman is, the more medically accurate his materials, the better off the pharmaceutical industry, health professionals and the public—*i.e.,* the patients—will be.

Physician Responsibility

The practicing physician is in constant need of up-dated information on therapeutics, including drugs. He should and does make use of drug information and answers to specific questions supplied by the pharmaceutical representative. However, that information must not be his main source of continuing education. The practitioner must keep up with what is current by making use of scientific journals, refresher courses, and information received at scientific meetings.

The practicing physician not only has the right, but has the responsibility to demand that the pharmaceutical company and its representatives supply a high level of valid and useful information. I feel certain that if such a high level is demanded by the physician as well as the public, this demand will be met by an alert and concerned pharmaceutical industry.

From my experience, my impression is that sectors of the pharmaceutical industry are indeed ethical. I challenge the industry as a whole to live up to that word in its finest sense.

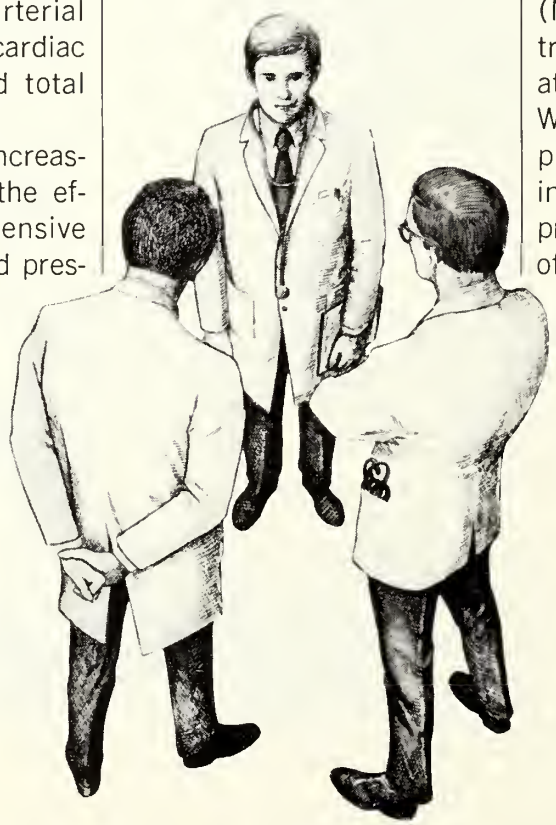
Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W.
Washington, D.C. 20005

P·M·A

The more physicians consider the hemodynamics of lowering blood pressure...

Most physicians now agree on the importance of reducing blood pressure in the hypertensive patient. But high blood pressure exists, of course, only as part of a complete clinical picture. The hemodynamic profile of well-established essential hypertension is characterized by elevated arterial blood pressure, normal cardiac output, and increased total peripheral resistance.

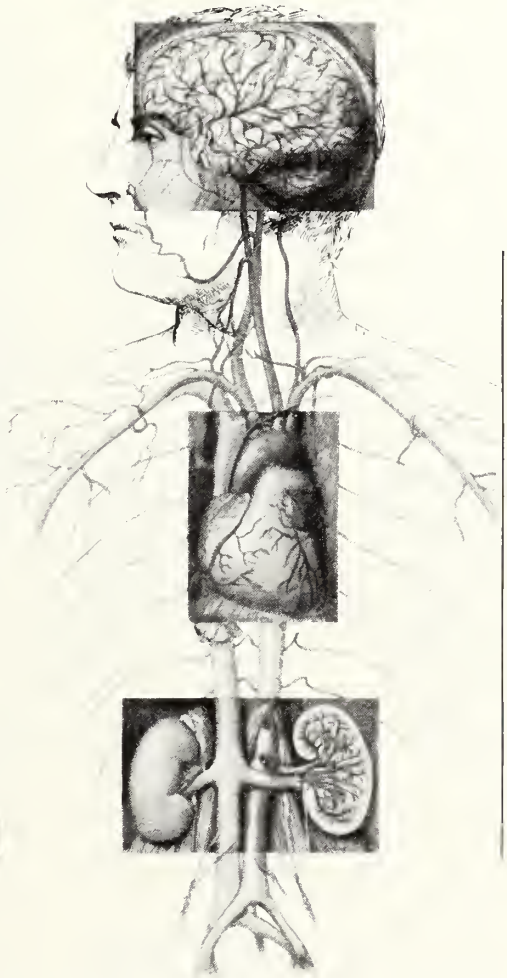
And so, physicians are increasingly concerned with the effects of an antihypertensive agent not only on blood pressure itself but also on the hemodynamic pattern—in short, with the total effect of the drug. *Does* it indeed help lower blood pressure effectively? *Is* peripheral resistance reduced? *Are* cardiac output and renal functions maintained? And, also, is there likely to be drug-induced postural hypotension serious enough to pose a threat to the patient's cerebrovascular status?



With this emphasis on overall drug performance has come a growing reliance on ALDOMET® (Methyldopa, MSD) in the treatment of sustained moderate hypertension.

With its unique hemodynamic profile, ALDOMET has drawn increasing attention and approval from physicians. First, of course, for its efficacy in

the more physicians rely on this unique antihypertensive



ering blood pressure. But
re are other considerations
well. Cardiac output is usu-
maintained with no cardiac
eleration; in some patients
heart rate is actually
wed. Peripheral resistance
apparently reduced.
OMET does not usually
promise existing renal
tion; it generally does not
ice renal blood flow, glo-
ular filtration rate, or fil-
on fraction. And ALDOMET
lly does not cause sympto-
c postural or exercise
ptension.

Contraindications include active hepatic disease and known sensitivity to the drug. Use with caution in patients with a history of liver disease or dysfunction. Not recommended in pheochromocytoma or pregnancy.

It is important to recognize that a positive Coombs test, hemolytic anemia, and liver disorders may occur with methyldopa therapy. The rare occurrences of hemolytic anemia or liver disorders could lead to potentially fatal complications unless properly recognized and managed. For more details see the brief summary of prescribing information.

In most cases of sustained moderate hypertension

TABLETS, 250 mg and 500 mg

ALDOMET®

(METHYLDOPA | MSD)

smoothly lowers blood pressure

NEW now available in **500 mg TABLETS** as well as the standard 250-mg tablets

or brief summary of prescribing information,
ease see following page.

In most cases of sustained moderate hypertension

ALDOMET®
(METHYLDOPA MSD)

smoothly lowers blood pressure

Contraindications: Active hepatic disease, such as acute hepatitis and active cirrhosis. Known sensitivity. Not recommended in pheochromocytoma. Unsuitable in mild or labile hypertension responsive to mild sedation or thiazide therapy. Use cautiously in patients with history of previous liver disease or dysfunction.

Warnings: It is important to recognize that a positive Coombs test, hemolytic anemia, and liver disorders may occur with methyldopa therapy. The rare occurrences of hemolytic anemia or liver disorders could lead to potentially fatal complications unless properly recognized and managed. Read this section carefully to understand these reactions.

With prolonged methyldopa therapy, 10% to 20% of patients develop a positive direct Coombs test, usually between six and twelve months of therapy. Lowest incidence is at daily dosage of 1 g or less. This on rare occasions may be associated with hemolytic anemia, which could lead to potentially fatal complications. One cannot predict which patients with a positive direct Coombs test may develop hemolytic anemia. Prior existence or development of a positive direct Coombs test is not in itself a contraindication to use of methyldopa. If a positive Coombs test develops during methyldopa therapy, determine whether hemolytic anemia exists and whether the positive Coombs test may be a problem. For example, in addition to a positive direct Coombs test there is less often a positive indirect Coombs test which may interfere with cross matching of blood.

At the start of methyldopa therapy, it is desirable to do a blood count (hematocrit, hemoglobin, or red cell count) for a baseline or to establish whether there is anemia. Periodic blood counts should be done during therapy to detect hemolytic anemia. It may be useful to do a direct Coombs test before therapy and at six and twelve months after the start of therapy. If Coombs-positive hemolytic anemia occurs, the cause may be methyldopa and the drug should be discontinued. Usually the anemia remits promptly. If not, corticosteroids may be given and other causes of anemia should be considered. If the hemolytic anemia is related to methyldopa, the drug should not be reinstituted. When methyldopa causes Coombs positivity alone or with hemolytic anemia, the red cell is usually coated with gamma globulin of the IgG (gamma G) class only. The positive Coombs test may not revert to normal until weeks to months after methyldopa is stopped.

Should the need for transfusion arise in a patient receiving methyldopa, both a direct and an indirect Coombs test should be performed on his blood. In the absence of hemolytic anemia, usually only the direct Coombs test will be positive. A positive direct Coombs test alone will not interfere with typing or cross matching. If the indirect Coombs test is also positive, problems may arise in the major cross match and the assistance of a hematologist or transfusion expert will be needed.

Fever has occurred within first three weeks of therapy, sometimes with eosinophilia or abnormalities in liver function tests, such as serum alkaline phosphatase, serum transaminases (SGOT, SGPT), bilirubin, cephalin cholesterol flocculation, prothrombin time, and bromsulphalein retention. Jaundice, with or without fever, may occur, with onset usually in the first two to three months of therapy. Rarely fatal hepatic necrosis has been reported. These hepatic changes may represent hypersensitivity reactions; periodic determination of hepatic function should be done particularly during the first six to twelve weeks of therapy or whenever an unexplained fever occurs. If fever, abnormalities in liver function tests, or jaundice appear, stop therapy with methyldopa. If caused by methyldopa, the temperature and abnormalities in liver function characteristically have reverted to normal when the drug was discontinued. Methyldopa should not be reinstituted in such patients.

Rarely, reversible reduction in leukocyte count with primary effect on granulocytes has been seen. Reversible thrombocytopenia has occurred rarely. When used with other antihypertensive drugs, potentiation of antihypertensive effect may occur.

Use in Pregnancy and Childbearing Age—Not recommended in pregnancy. In women of childbearing age, weigh potential benefits against possible fetal hazards.

Precautions: Methyldopa may interfere with measurement of: uric acid by the phosphotungstate method, creatinine by the alkaline picrate method, and SGOT by colorimetric methods. Since methyldopa causes fluorescence in urine samples at the same wavelengths as catecholamines, spuriously high levels of urinary catecholamines may be reported. This will interfere with the diagnosis of pheochromocytoma. Stop drug if involuntary choreoathetotic movements occur in patients with severe bilateral cerebrovascular disease. Patients may require reduced doses of anesthetics; hypotension occurring during anesthesia usually can be controlled with vasopressors. Hypertension has occurred after dialysis in patients on methyldopa because the drug is removed by this procedure.

Adverse Reactions: Sedation, usually transient, may be seen during initial therapy or when dosage is increased. Headache, asthenia, or weakness may be noted as early, transient symptoms. Symptoms associated with effective lowering of blood pressure are occasionally seen and include dizziness, lightheadedness, and symptoms of cerebrovascular insufficiency. Angina pectoris may be aggravated. Symptoms of orthostatic hypotension may occur; if symptoms occur, reduction of dosage is suggested. Bradycardia, nasal stuffiness, mild dryness of mouth, and gastrointestinal symptoms including distention, constipation, flatus, and diarrhea occur occasionally; these generally can be relieved by reducing dosage. Nausea and vomiting have been reported in only a few patients. Sore tongue or "black tongue," pancreatitis, and inflammation of salivary glands may occur.

Weight gain and edema occur infrequently and are relieved by administering a thiazide diuretic; if edema progresses or signs of pulmonary congestion appear, discontinue drug. A rise in BUN has been observed. Other rare reactions include breast enlargement, lactation, impotence, decreased libido, skin rash, mild arthralgia, myalgia, paresthesias, Bell's palsy, parkinsonism, psychic disturbances including nightmares, reversible mild psychoses or depression. Urine exposed to air after voiding may darken because of breakdown of methyldopa or its metabolites.

Note: Dosage should be limited initially to 500 mg daily when following previous antihypertensive agents other than thiazides. Maximal recommended daily dose is 3.0 g. Patients with impaired renal function may respond to smaller doses than patients with normal kidney function. Syncope in older patients has been related to increased sensitivity in those with advanced arteriosclerotic vascular disease; this may be avoided by lower doses. Tolerance occasionally seen either early or late, but more likely between second and third month after initiation of therapy; increased dosage or combined therapy with a thiazide frequently restores effective control.

How Supplied: Tablets, containing 250 mg methyldopa each, in single-unit packages of 100 and bottles of 100 and 1000; Tablets, containing 500 mg methyldopa each, in single-unit packages of 100 and bottles of 100.

For more detailed information, consult your MSD representative or see full prescribing information. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa. 19486

addendum

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Because of the importance of patient motivation, Merck Sharp & Dohme offers "High Blood Pressure," a concise, pocket-sized booklet that defines the patient's own role in the management of hypertension. This booklet is available for you to give to your patients. It is designed to reinforce your explanation of hypertension and it emphasizes the importance of patient understanding in adhering to the regimen you prescribe.

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REPORT ON MEETING OF SCMA COUNCIL

October 17, 1974

1. Mrs. Emily Collum, President, S. C. Nurses Association, came to Council to report two changes in laws governing nurses in South Carolina which the SCNA plans to propose and push if SCMA supports them. These changes would (1) add a sixth member to the State Board of Nursing, the sixth member being a consumer, and (2) be a broadened and less specific definition of "nursing." She also urged the Council to see that the Joint Practices Commission, especially the physician members, be more active and assertive, and that in this way we physicians could more effectively control nursing practices in South Carolina. Council appreciates the improved communications between SCNA and SCMA as evidenced by Mrs. Collum's visit.

2. Dr. Gordon Hennigar presented a proposed bill to upgrade a Medical Examining System in South Carolina. The obvious advantages of his scheme were discussed and the practical obstacles to its enactment were considered. Council approved generally and referred this matter to committee for consideration and action at the December business meeting.

3. INTRAV, sponsors of the successful 1973 Orient Adventure and 1974 Scandinavian Adventure, proposed a *1975 British Isles Adventure* of 14 days for $1,038 per person. A DC8—218 passengers—will be used. If we can fill it, it will all be ours, but we can bring friends if space allows. July 22 to August 5 are the proposed dates. There will be medical seminars, hospital visits, curbstone consultations, etc., which may make the trip tax deductible by any physician. This was approved by Council.

4. The Treasurer's Report by Ernie Lathem was well received by Council, especially in view of the fact that SCMA will end the year with a small balance this year, as compared to a $21,000 deficit at the end of last year.

5. The President's Report by Don Kilgore pointed out a number of important matters:

(a) Approval of SCMA annual meeting for credit towards physician's recognition award will be sought in Category I.

(b) Correlation of cardiovascular disease with soft water use had been suggested as a worthwhile project for the SCMA. It appears that this has already been moved into by the S. C. Heart Association. Because of the importance of this it was moved to refer this matter for recommendations to the Committee on Medical Services, which will be activated by President Kilgore.

(c) A letter from Whitten Village Parents Club asked for SCMA investigation of Dr. Suber's removal from Whitten Village Directorship. The Committee on Mental Health will be asked to make an extensive, in-depth investigation of the care of the mentally retarded in South Carolina and report to the Association.

(d) Membership survey showed that with 22 of 38 counties reporting, only 196 physicians are members of County Medical Societies, and not members of SCMA, while in one county alone 257 physicians do not belong to their local society. This seems to be the largest reservoir of non-membership. It appears that a large number of these non-members are service and teaching physicians. Several suggestions, including a special category of membership and personal recruitment, were mentioned. The Membership Committee will be asked to make a study and recommendations on this matter, and the possibility of reducing membership fees for the first year or two for a newly practicing physician.

(e) Report on Mr. Meadors' position

indicates that the Association and Mr. Meadors have not yet resolved their differences on his employment contract.

(f) By an Executive Order of the Governor, there is a move to consolidate many of the state bureaus, such as Board of Medical Examiners, under one department. This appears to be a move for power and remains in a state of flux at the present. It seems to be an effort to emasculate organized medicine in state activities. Your Council will continue to be active in opposing such efforts.

6. (a) Chairman of Council, Waitus Tanner, filled several vacancies in various Association agencies.

(b) It was reported that a purchasing agency, Carolina Saves, was approved by the members of SCMA and an establishing committee was appointed.

7. Executive Director's Report: (a) Membership billing and Membership Directory will be furnished by the AMA for a reasonable price.

(b) New printing equipment has been leased.

(c) It appears that the new SCMA office building will be completed and ready for occupancy about the first of 1975. The new address will be 3325 Medical Park Road, Columbia, South Carolina 29203.

(d) Ron Harris, past Director of Public Relations of South Carolina Banker's Association, was hired to work in public relations and other fields for the Association.

(e) Membership benefit folders have been prepared and will be distributed appropriately.

8. Bill Fairey reported on the very extensive dealings and negotiations his Professional Liability Committee has had with St. Paul, our professional liability carrier. It does appear that a sizable rate increase is unavoidable, justified, and coming. This Chairman and his committee are due great thanks from all physicians (not just the SCMA members who supported them) in South Carolina for their diligent and skillful efforts on our behalf. I do not think St. Paul will ever try an unjustified rate increase in South Carolina now!

At this point Council had been in continuous session for over five hours and had not completed one half of the agenda. Your reporter was called away to medical duty at this point. A condensed report of the remainder of this meeting will be taken from the Minutes and presented to you later.

To be Continued

EEK

MEDICAL UNIVERSITY OF SOUTH CAROLINA
DEPARTMENTAL SESQUICENTENNIAL SEMINARS
OF THE COLLEGE OF MEDICINE

December 9-10	Plastic Surgery — Dr. Raymond O. Brauer of Houston, guest speaker.
December 12-13	Orthopaedics — Dr. Alfred B. Swanson of Grand Rapids, Mich., guest speaker.

Please notify the appropriate department if you expect to attend. Medical University of South Carolina, 80 Barre St., Charleston, S. C. 29401.

Book Review

STRESS WITHOUT DISTRESS by Hans Selye, M.D. J. B. Lippincott Co. Philadelphia. 1974. Illus., pp. 171, N. P.

No book can really stand alone. In 1956, Hans Selye published his book, *The Stress of Life* (McGraw-Hill Book Company, Inc.). In twenty-three chapters, he sets forth the principles of stress but in the twenty-fourth chapter, he considers the "Philosophic Implications of Stress." A few years later in 1959, *The Phenomenon of Man*, by the Jesuit priest-biologist-paleontologist Pierre Teilhard de Chardin, was translated from the French and published in the United States by Harper and Brothers, New York. This book brought censure upon Father Teilhard de Chardin by the Jesuit Order and could not be published until after his death in 1955.

These two books illustrate quite well the need that scientists who work close to LIFE have to develop and express their philosophy of life. This need—at times a compulsion—to express the meaning of life might take one of several turns. The expression might be on a spiritual—or even a mystical—plane, as Father Teilhard de Chardin, influenced by his training as a priest, but as a true scientist, also, might develop. After many years in the study of evolution and paleontology, Father Teilhard felt that man had not reached his full evolutionary potential and that man still remained the potential for further spiritual development and a fuller, better life. Hans Selye, on the other hand, in his book *Stress without Distress*, picks up from his earlier book a philosophy that he amplifies and enlarges upon with the added maturity of eighteen years.

In the first part of his book, *Stress without Distress*, Professor Selye briefly reviews his conception of stress. Later in the book he uses this as a basis for developing a mode, or way, of life least likely to cause distress. He starts with the premise that the old commandment "love thy neighbor as thyself" is impossible to keep because of an inherent "egotism" in all living matter from the single cell to the most complex societies. Single cells, cells making up organs of more complex organisms, higher forms of life, man, and societies of man, learn to live together by a process known as "altruistic egotism." The cell or organism has the basic laws of self preservation and preservation of the species as a primary principle and therefore its egotism. The cancer cell is an example of egotism without altruism, and with the eventual destruction of the host and the cell.

Professor Selye lists these truisms that help man convert his egotism into altruistic egotism: motivation, work, aim, means, and long-term goals. The proper appreciation and application of these truisms should enable man to convert the old commandment "love thy neighbor as thyself" into the practical and workable commandment of "earn thy neighbor's love." In this state of altruistic egotism man, learning from nature, can live in harmony with his fellow man, and with himself, with a minimum of distress.

This little book is worth reading for the good sense it makes even without the ingenious biological tie-up with stress. Hans Selye presents a sound philosophy of life.

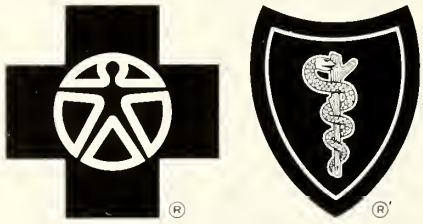
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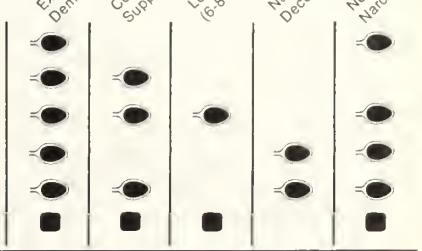
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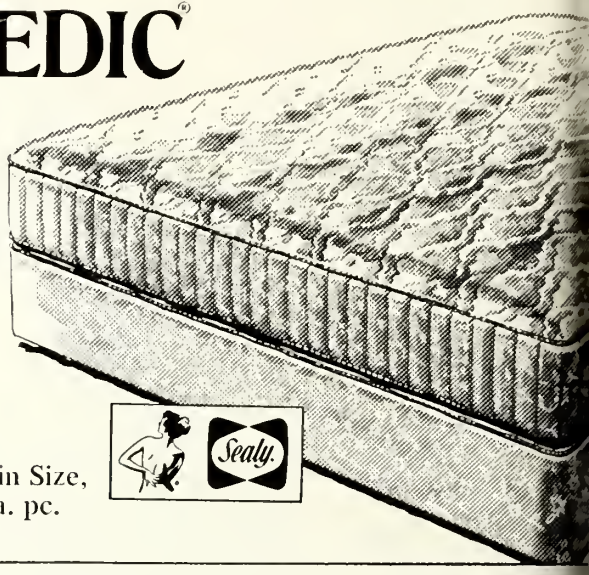
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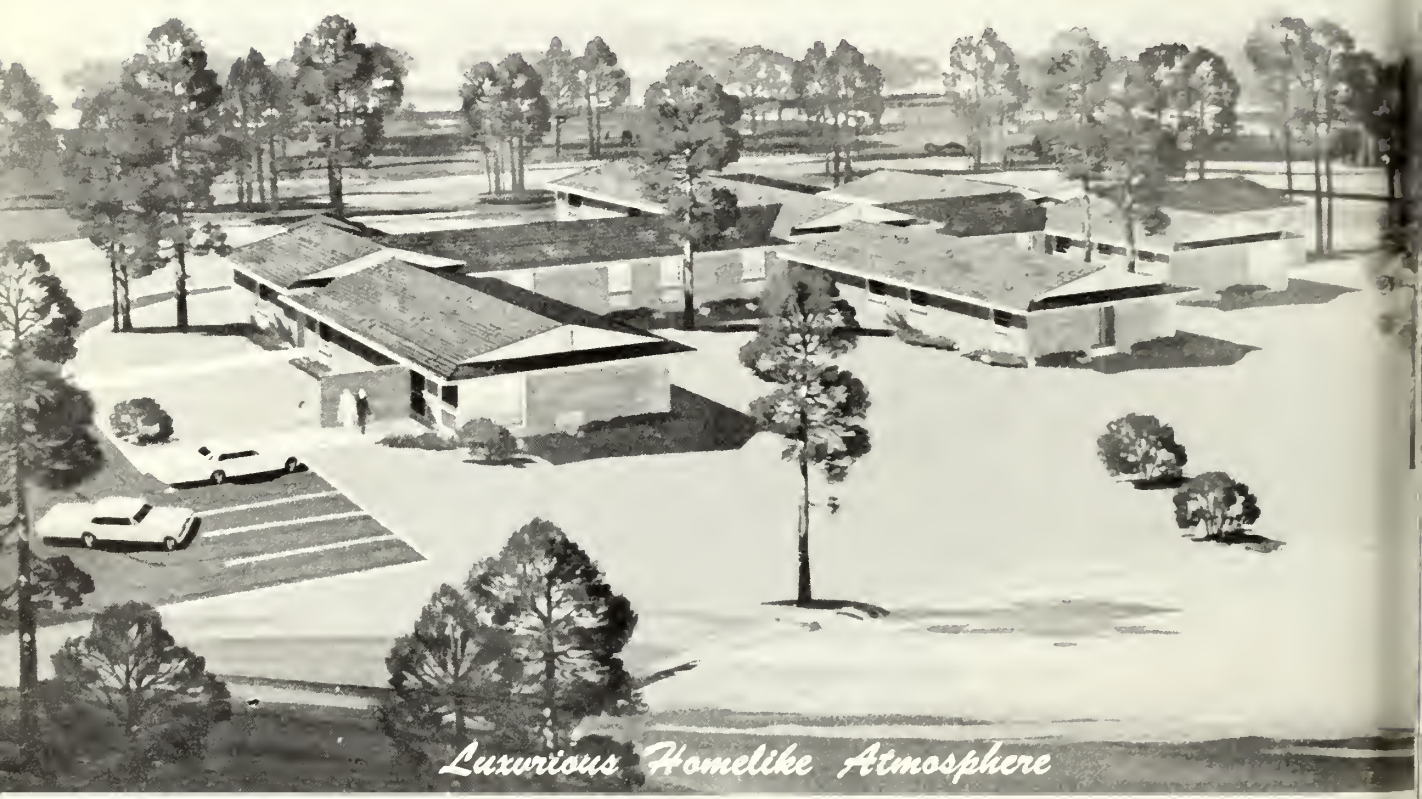
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*Rome HP, Brannick TL: Orientation and mechanism of functional disorders; clinicophysiologic correlation, chap. 133, in *Gastroenterology*, edited by Bockus HL. Philadelphia, W.B. Saunders Company, 1965, p. 1116.

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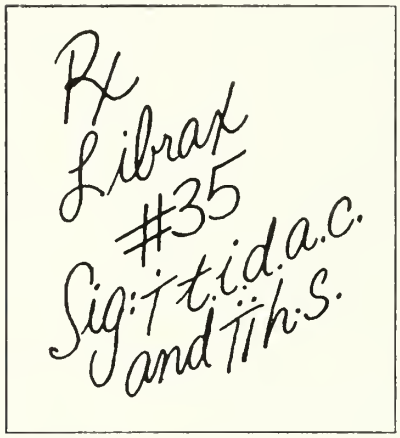
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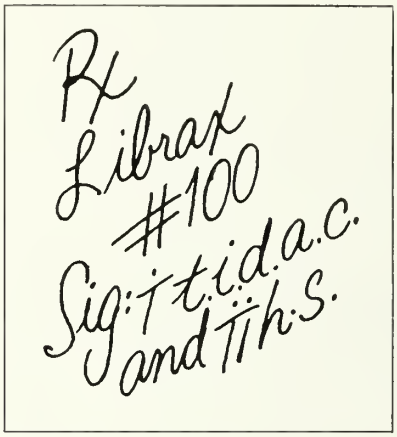
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Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

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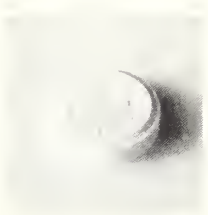
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For further information on this subject, the following references are provided:

1. Henry BW, *et al: Dis Nerv Syst 30*:675-679, Oct 1969.
2. Hollister LE, *et al: Arch Gen Psychiatry 24*:273-278, Mar 1971.
3. Claghorn J: *Psychosomatics 11*:438-441, Sept-Oct 1970.



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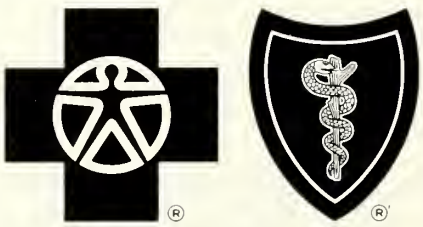
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THE JOURNAL, SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by the South Carolina Medical Association. Business office: 1508 Washington Street, Columbia, South Carolina 29201.

Subscription price: $6.00 in the U. S. ($7.00 per year, Foreign) Second Class Postage paid at Columbia, S. C. and at additional mailing offices.

The views expressed in this publication are those of the writers and do not necessarily reflect the opinions of the South Carolina Medical Association.

Contributions of Original Articles

Length—Short articles of about 2,500 words (about 8 typewritten pages, double spaced) are preferred. Longer articles will defer to the shorter ones in schedule of publication.

Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.

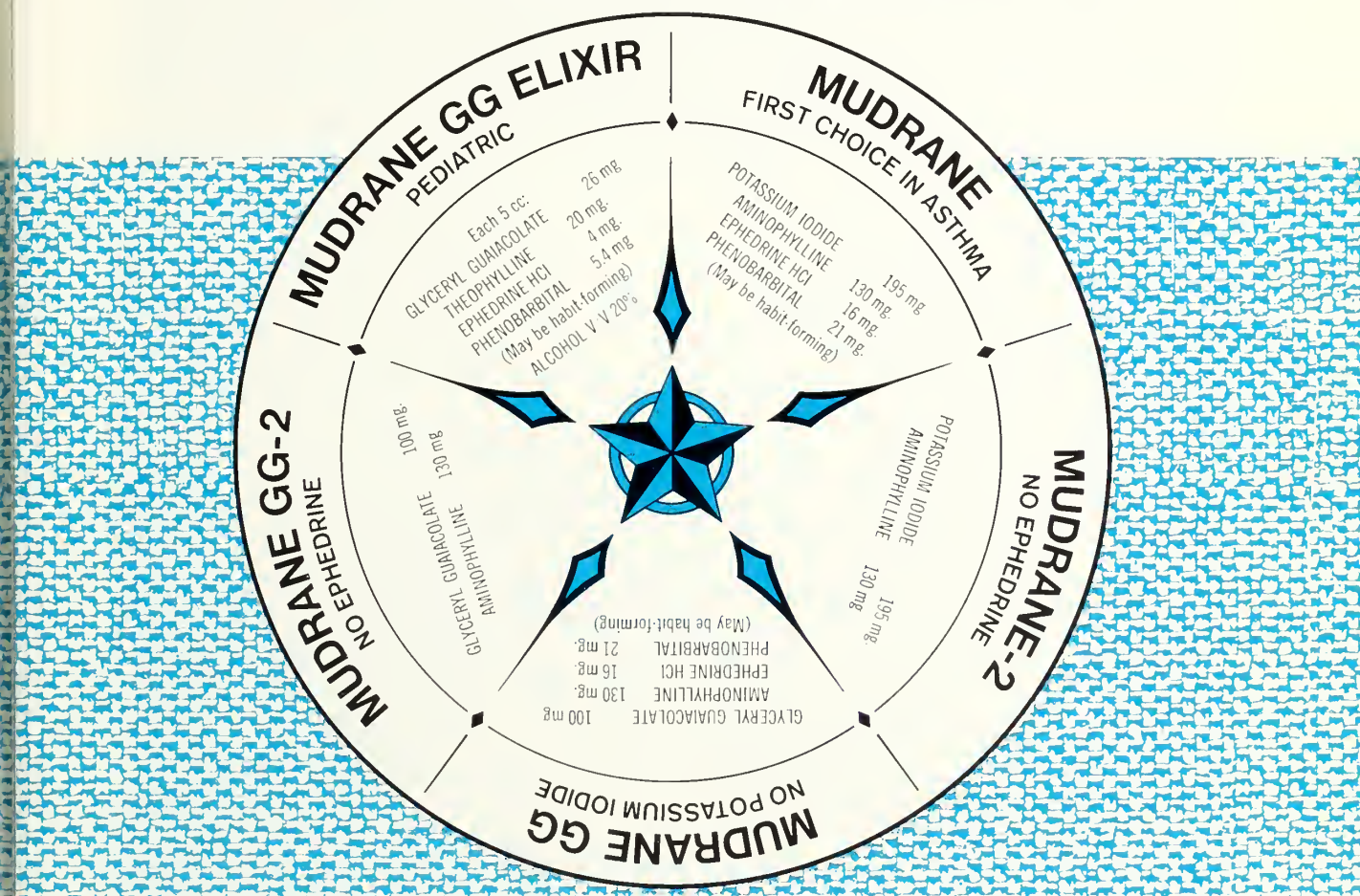
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WHAT EVER HAPPENED TO THE GENERAL PRACTITIONER?

L. MICHAEL TREADWELL*

INTRODUCTION

In the last few decades our nation has taken giant strides in assuring every American the opportunity to live a full rich life. The availability of adequate health care services is one of the factors that contribute to this "good" life. But with all our recent progress and good intentions, there are still many millions of Americans who are not receiving adequate health care. The reasons behind the inadequate care are rather pedestrian, mundane, and uncomplicated. In many instances the required services are not available — or, if available, are too expensive; but, more often than not, the person requiring care simply does not know how to obtain it.[1]

A number of studies are beginning to reveal the awesome dimensions of the problem of inadequate health care in our society. Increasingly, the phrase *health care crisis* is being used to describe the situation. Although the crisis is affecting millions of Americans, the burden of its long term damage is falling most heavily on minority groups, rural populations, and the poor.[2]

Any thoughtful analysis of the health care industry as it exists in the United States identifies the general practitioner as the most important cog in our delivery system. The general practitioner is the person who plays the crucial role in providing and obtaining adequate health care for individuals. While almost everyone acknowledges the importance of the general practitioner, we find, however, that his numbers are decreasing. With this fact in mind, the objectives of this paper became (1) to examine the declining trend in general practice in the United States, (2) to investigate the trend in general practice in South Carolina and compare it with the national trend, and (3) to identify the significance of general practice as it relates to the well-being of the citizens of South Carolina.

THE DECLINE

Throughout the twentieth century we have had a steady increase in the number of medical specialists. The years from 1950 through 1971 produced some of the most dramatic gains in the number of physicians entering areas of specialization. During these same years we have had a concomitant decline of physicians in the field of general practice. Table I documents these trends.

In 1950, for example, approximately 51 per cent of the nation's 207,400 physicians were general practitioners. The number of physicians in general practice was, in fact, equivalent to the total number of physicians in all other types of medical

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MA Geography, University of South Carolina
Research Analyst, S. C. State Development Board

practice. But, this ratio was soon to be changed! By 1963 a mere 28.8 per cent of the nation's physicians were general practitioners. In the thirteen years the national ratio changed from one general practitioner for every specialist to one general practitioner for every three physicians in specialties.

The number of physicians entering specialized practice continued to grow; and by 1971 the dominance of the specialist was well established in the medical care field. In the intervening eight years—from 1963 to 1971—approximately 83 per cent of the nation's 312,000 physicians were involved in some type of practice other than general practice. Only 52,900 physicians were in general practice by 1971. Thus, at the beginning to the 1970s only one physician in six was available to the citizenry of the United States for general consultation.

Between 1950 and 1971 there was a 50.6 per cent increase in the number of non-federal physicians in the United States. This represented a net increase of some 105,000 physicians in 21 years. This increase resulted from a net gain of 157,800 specialists coupled with a net decline of 52,800 general practitioners. The loss of physicians in general practice during this 21 year period amounted to a 50 per cent decline.

THE GP's OF SOUTH CAROLINA

On a per capita basis, South Carolina currently ranks fiftieth among the states in dentists, forty-first in active pharmacists, and forty-sixth in physicians.[3] There is, obviously, a deficiency of health care personnel of all types in South Carolina. In a previous article the maldistribution and the implications of the maldistribution of physicians in South Carolina was discussed.[4]

The statistics in Table II indicate that while the total number of physicians in South Carolina has increased, the number of these physicians engaged in general practice is on the decline. Between 1964 and 1974, there was a 41.9 per cent drop in the number of physicians classified as general practitioners in the state. This represents an absolute drop of 319 physicians. In 1964, general practitioners constituted about 42 per cent of all the physicians in South Carolina. Currently, however, only 18 per cent of the state's physicians are classified as general practitioners.

Within the last 10 years the rate of decline in the number of general practitioners in South Carolina has proceeded at a more rapid pace than the national average. The percentage decline in the total number of general practitioners throughout the United States was 50 per

TABLE I
NUMBER OF PHYSICIANS IN GENERAL PRACTICE
IN THE UNITED STATES

Year	General Practice (000)	Total Non-Federal Physicians (000)	GP's Per Cent of Total
1950	105.7	207.4	50.9
1963	69.0	239.8	28.8
1964	67.6	247.7	27.3
1965	66.4	268.1	24.8
1969	54.7	293.4	18.6
1970	53.3	301.3	17.7
1971	52.9	312.4	16.9

Source: U.S. Bureau of the Census, Statistical Abstract of the United States (1965, 1970, and 1973 Volumes).

TABLE II
NUMBER OF PHYSICIANS IN GENERAL PRACTICE
IN SOUTH CAROLINA

Year	General Practice	Total Non-Federal Physicians*	GP's Per cent of Total
1964	761	1,809	42.1
1974	442	2,436	18.1

*Inactive, non-classified, and federally employed physicians were excluded.
Source: State Board of Medical Examiners of South Carolina, Directory 1963-64 and Directory 1973-74.

cent between 1950 and 1971. In South Carolina, the decline in the last decade has been 41.9 per cent—a figure which almost matches the combined national decline for the decades of the 1950s and the 1960s.

BASIC CARE IN SOUTH CAROLINA

The concept of the family practitioner has been emerging on the national scene within recent years. One way of viewing the activity of the family practitioner, however, is that he is engaged in a sophisticated type of general practice. Thus, for practical purposes we can count family practitioners as general practitioners.

The South Carolina records for 1964 indicate there were no family practitioners licensed in the state. Though by 1974, there were 220 of these physicians delivering medical care services to thousands of South Carolinians.[5] South Carolina's record keeping, we should note, makes a distinction between the general practitioner and the family practitioner.

Reviewing the situation from a different vantage point—i.e., counting family practitioners as physicians in general practice—we find that 662 basic care physicians were available to the citizens of South Carolina in 1974. This way of computing raises the number of physicians in general practice to 27.2 per cent of the total number of non-federal physicians in the state. These figures can be taken to indicate an encouraging trend in South Carolina. But even such an optimistic reading of the situation must acknowledge that the statistics in Tables I and II indicate that the states of this nation—including South Carolina—are finding it difficult to get physicians to devote themselves to the general practice of medicine.

In 1971 physicians were located in 161 cities, towns, and communities in South Carolina. In total, there were 2,151 licensed physicians practicing in the state, excluding federally employed and inactive physicians. Of these, some 696 were classified as either general practitioners or family practitioners—in other words, basic care physicians. This represented 32.4 per cent of all the licensed physicians in the state. Of the 161 locations which had physicians in 1971, all but five had some type of basic care physician available.[6]

The clustering, however, of general and family practitioners in the urban areas of South Carolina was quite pronounced in 1971. Nearly one-third—representing 226 of these physicians—were located in the eight major cities of the state: Anderson, Charleston, Columbia, Florence, Greenville, Greenwood, Rock Hill, and Spartanburg.

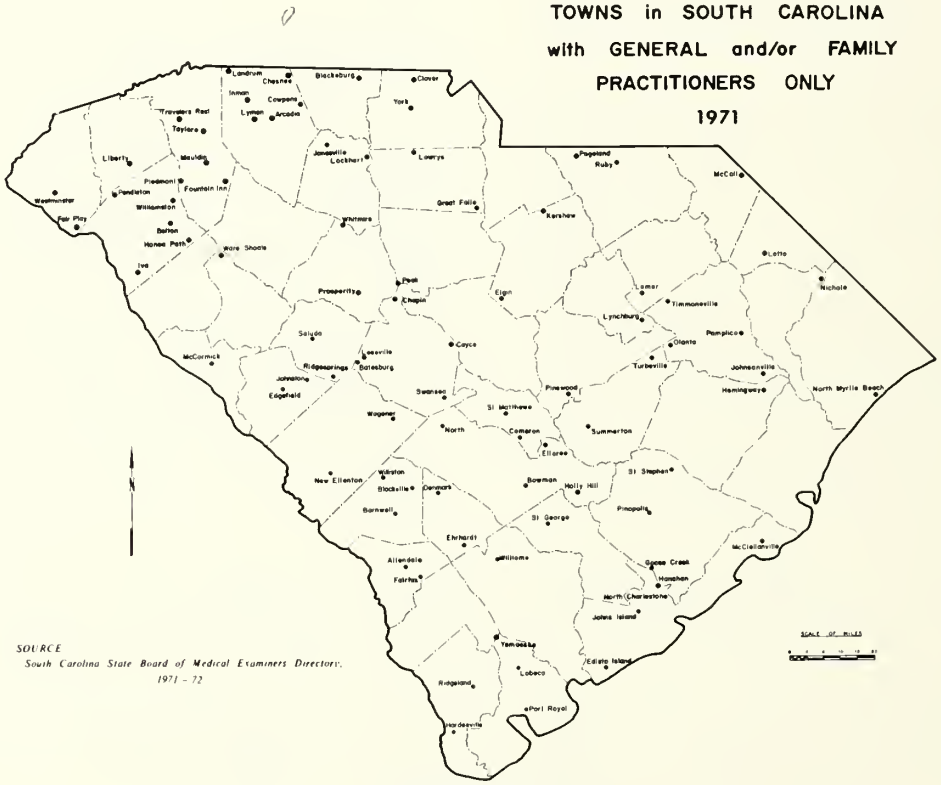
The importance of the basic care physician to South Carolina's health care delivery system is indicated by the fact that 88, or 54.7 per cent, of the 161 places with physicians available had only general practice and/or family practice service available. Figure I identifies the com-

munities in which this situation prevailed in 1971.

According to the 1970 U.S. Census and the 1971-72 Directory of the State Board of Medical Examiners of South Carolina, there were 157 South Carolina locations (incorporated as well as unincorporated) of 1,000 or more people without any resident physician. In order to seek medical attention the residents of these communities had to commute to neighboring towns. The difficulties and problems inherent in such situations are obvious.

CONCLUSIONS

The general practitioner is still a prominent figure in South Carolina's medical care delivery system. The impact of specialization and the clustering of physicians of all types in the urban areas of the state, however, are producing problems that interfere with the expeditious and efficient delivery of medical care to the citizenry. In order to upgrade the medical care delivery system in South Carolina there are two needs which must be met: (1) the state must increase the number of its general practitioners; and (2) the state must achieve a better distribution of these physicians throughout the state so that the services they can deliver are more immediately available and accessible to potential patients.



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PROPANALOL IN THYROID SURGERY

FURMAN T. WALLACE, M.D.*
RICHARD S. WILSON, M.D.*

One problem in thyroid surgery that has occurred occasionally is the lack of response of hyperthyroidism to antithyroid drugs. It is well known that most patients will become euthyroid with Propylthiouracil or Tapazole. Surgery can be done after this preparation.

However, an occasional but significant number of patients do not respond to antithyroid drugs. One of these was encountered in August, 1973. An attempt was made to prepare the patient for surgery with Propylthiouracil and in spite of persistent efforts it was unsuccessful and surgery had to be postponed.

A recent news item that occurred in a bulletin of the Southeastern Surgical Congress discussed the use of Propanolol in preparation for thyroid surgery by Waite. Doctor John H. Waite was contacted by telephone.[1] His program of preparation was used in this particular patient. Also, a report by Lee[2] was reviewed. Propanolol was used in increasing doses in this patient and the precautions recommended by Doctor Waite were utilized. One of the main ones was that only one person would order the Propanolol. The program was to start on a smaller dosage of Propanolol and then each day this individual would check the pulse personally and if the pulse had not come down to satisfactory levels the dose of Propanolol was increased. This was increased daily until a satisfactory euthyroid state developed and the pulse was below the range of 80. At that time the patient was operated on successfully and the Propanolol was continued during surgery and after surgery to prevent thyroid storm.

What is the mechanism in preparation of hyperthyroid patients with Propanolol? There appears to be a synergistic relationship between the thyroid hormones and epinephrine. Thyroid hormones augment many of the responses to epinephrine.[3] These include central nervous system hyperactivity, sweating, fever, dilation of blood vessels and increase rate and force of contraction of the heart. Propanolol produces a block at the neuroeffector junction actually in the tissues, such as the heart. The adrenergic stimulation has been divided into alpha and beta types. Propanolol blocks the beta-adrenergic activity at the neuroeffector junction. This occurs in the tissue, such as the heart. The amount of circulating thyroid hormones is not reduced.

CASE REPORT

Mrs. E. G. M., Mary Black Memorial Hospital #74-1178, was admitted on December 8, 1973. She was a twenty-six year old white female with the signs and symptoms of diffuse toxic goiter. She had a history of first having symptoms of hyperthyroidism in 1971. She deferred treatment at that time because of a pregnancy which was followed by subsequent pregnancy. When admitted she had been on Propylthiouracil for a period of four months, 400 mg. daily. She was given Lugol's solution in the latter part of this period. After admission to the hospital her pulse remained consistently elevated at 128 and surgery was cancelled.

At that time the program suggested by Waite was begun. At the level of 40 mg. of Propanolol q 6 hours, her symptoms came under control and the following day the pulse dropped to 84. Thyroidectomy was done six days after the optimum level of Propanolol had been instituted. In this patient it was 40 mg. q 6 hours. The last dose

*Department of Surgery, Wallace Wilson Brailsford Clinic, Spartanburg, South Carolina.
Presented at the South Carolina Surgical Society Meeting, Charleston, S. C., June 14, 1974.

was given two hours before surgery.

The patient did well during surgery, pulse ranging from 72 to 85. Propanolol was continued post-operatively in the same dosage. This was given four days in the hospital and she was discharged on the fourth post-operative day. Propanolol was continued for four additional days at home.

DISCUSSION

First, the effect of Propanolol should be reviewed. It is called a beta-adrenergic blocking agent. Adrenergic action has been divided into alpha and beta types. The alpha type is produced mainly by norepinephrine. Norepinephrine is mixed but is mainly alpha. Epinephrine is mixed but is mainly a beta-adrenergic stimulator. Propanolol is a beta-adrenergic blocking agent. This effect is at the neuro-effector junction located in the tissue itself, such as the heart.

There are some conditions in which beta-adrenergic stimulation are advantageous, such as in bronchospasm. Therefore, one would hesitate to use Propanolol in bronchospasm or asthma. Two other conditions in which beta-adrenergic stimulation is of value, and therefore Propanolol would be used cautiously, would be in congestive heart failure and hypoglycemia.

Since surgeons use this drug only occasionally, they need some guidelines to go by. Certain precautions are necessary. One rule would be to avoid its use in patients with bronchial asthma. The second would be to have only one person ordering the increases in the drug and for that person to personally check the pulse rate each time before an increase is ordered. As far as the dosage is concerned, ten months ago the doses being used initially were smaller with smaller increments. A starting dose was 10 mg q 6 hours with increases to 20 mg., 40 mg., 60 mg., 80 mg., and on up to 160 mg. q 6 hours. Now Waite[1] is using 40 mg. q 6 hours and increasing to 80 mg. q 6 hours then 120 mg., then 160 mg. every 6 hours. The dosage of 800 mg. per day should probably not be exceeded.

In the cases that have been reported about 10 per cent of the patients do not respond to Propanolol and have to be treated by other means. In two out of twenty of Lee's cases[2] the patients did not respond to Propanolol. They were treated with Propylthiouracil and then with Propanolol in addition and were finally brought under control for surgery.

Atropine should not be used as a pre-operative medication to avoid tachycardia, which may result from parasympathetic blockade in thyrotoxic patients.[2] Its use can be reserved for the treatment of bradycardia during surgery. It is well established that Propanolol is of great value in the treatment of thyroid storm. It can be used in increasing doses and thyroid storm can be quickly brought under control.

It must be emphaized that the amount of circulating thyroxine is not reduced and therefore Propanolol must be given within one to two hours of surgery to prevent thyroid storm during surgery. It must be continued post-operatively for a period of seven to ten days to prevent thyroid storm in the post operative period. It should be continued until the blood thyroxine returns to normal. If the patient is unable to take Propanolol orally in the immediate post-operative period, Propanolol can be given cautiously intravenously. The amount should probably not exceed one milligram at each dose.

It has still not been completely established which patients should have Propanolol in preparation of thyroid surgery. It is felt by some that Propanolol should only be used in the patients that do not respond to Propylthiouracil or Tapazole. Its use in these patients is becoming well established.

There is a possibility that Propanolol may become the treatment of choice and, for this reason, it is advisable that some centers under careful controlled conditions should prepare all of their hyperthyroid patients with Propanolol for thyroid surgery. In this way a quicker evaluation can be obtained than would be pos-

sible if its use was limited to those that did not respond to Propylthiouracil.

It seems that it is not necessary to use iodine with Propanolol prior to surgery. One thing that is avoided with Propanolol is the feedback principle.[4] This occurs when thyroid hormones are suppressed, such as with Propylthiouracil. The deficiency in thyroid hormones evokes the release of extra thyroitropin from the pituitary gland. The thyroid gland enlarges and its vascularity increases.

Since Propanolol does not reduce the amount of circulating thyroid hormones, the feedback mechanism does not occur and the thyroid does not enlarge and does not become more vascular and friable. Iodine is not necessary in preparation with Propanolol.

SUMMARY

It is felt that Propanolol is of great value in preparation of hyperthyroid patients for surgery. Its use in patients that do not respond to Propylthiouracil or Tapazole has been well demonstrated. Its value in the treatment of thyroid storm has been demonstrated. There is some possibility it could become the treatment of choice in preparation of patients for thyroid surgery. This will be determined later by detailed studies at certain selected institutions.

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THE TREATMENT IN OFFICE PRACTICE OF URINARY TRACT INFECTIONS WITH NALIDIXIC ACID

J. ERNEST LATHEM, M.D.**
R. MAXIE McCOY, M.D.**

INTRODUCTION

Nalidixic acid (NA) was first introduced in 1964 as an effective urinary tract antimicrobial. It is well tolerated and highly reliable in treating infections due to susceptible organisms. NA has marked antibacterial activity against a wide range of the most commonly encountered Gram-negative bacteria such as E. Coli, Proteus Mirabilis, P. Morganii, P. Vulgaris and P. Rettgeri though strains of Pseudomonas are frequently resistant. NA is effective over the entire urinary pH range and shows no cross resistance with other antibacterials. This study was done to evaluate whether NA, when taken in the proper manufacturer's recommended dose of 4 grams a day, is effective, definitive therapy for the acute, uncomplicated* out-patient urinary tract infection and whether the incidence of side effects, drug failure and recurrent infection is greater than that encountered with alternative therapeutic modalities.

MATERIALS AND METHODS

Sixty patients were selected from our urological service and private practice who presented complaints indicative of urinary tract infection. Patients were selected with no regard to age or sex; however, the majority of the cases were young women with a diagnosis of uncomplicated acute cystitis. They were entered in the study when a history, physical examination and urinalysis suggested evidence of urinary tract infection. All culture and sensitivity testing was done using a 30 mcg. disc of NA according to the standard Kirby-Bauer technique. On day one, each subject had a CBC and a SMA-12 in addition to a creatinine determination. A clean catch, mid-stream urine sample was taken for culture and sensitivity on males, a catheterized urine sample was obtained on females. The subject was then started on two 500 caplets of NA, four times a day (for a daily total of 4 grams). Three days later, the subjects were asked to return for a second hematological determination and a second urine culture and sensitivity. A third culture was done at termination of therapy which was two weeks in duration, and again, finally two weeks after the discontinuation of NA therapy. At this time, a second SMA-12, CBC and creatinine determination was performed. It was understood that adjustments of dose and therapy would be instituted in the event of adverse reactions.

RESULTS

Sixty patients with urinary tract infections documented by significant bacteriuria of 100,000 bacteria/ml were studied to determine the effectiveness of NA as a urinary antimicrobial. Of these sixty patients, fifty had bacteriuria sensitive to NA on the first pre-therapy culture

**Greenville, South Carolina
*Acute, uncomplicated urinary tract infection: Urinary tract infection with no clinical signs of kidney disease or out flow tract obstruction and no symptoms of genito-urinary tract infection for at least three months prior to this reported episode.

and twenty-four of these fifty (approximately 50%) had negative cultures three days after initiation of therapy at a dosage schedule of four grams per day. Twenty-five additional patients had negative cultures at the end of two weeks of treatment, again following the manufacturers recommended dosage of 2 caplets, 500 mg of NA, four times a day. A total of forty-nine of fifty patients (99%) had negative urine cultures after the standard two week regimen of NA was completed. Two weeks following the discontinuation of NA therapy, seven of the fifty patients again had positive urine cultures, however, not always due to the original species of infecting bacteria. Of the fifty patients with an initial positive urine culture sensitive to NA, forty-five demonstrated E. Coli, four Proteus, and one had an unidentified Gram-negative rod. Biochemical profiles and CBC were done at the beginning of therapy and after two weeks of therapy no significant alteration of any one parameter was found. Nine of the ten patients, who were originally found to have bacterial cultures resistant to NA, had no growth three days following the initiation of therapy, indicating a clinical response to NA despite the indications on culture and sensitivity that this should *not* happen. Occasional blurring of vision was encountered but in no case were the side-effects of sufficient clinical significance to warrant discontinuance of the drug.

DISCUSSION

A variety of factors affect the response of an infecting organism to anti-microbial therapy, specifically, to NA therapy. While it may not be within the range of scope of this study to provide definitive explanations of all these factors, a brief summary may, in fact, be helpful in providing insight into numerous negative findings concerning NA in the medical literature and diametrically opposite to our encouraging findings. Infectious drug resistance passed on by R-factors was discovered first in Japan in 1959. Shigella Flexneri strains of bacteria were the first noted to be resistant to four unrelated drugs (Streptomycin, Tetracycline, Choloamphenicol, Sulfonamide). It was then noted that strains of E. Coli were also resistant to the same antibiotics and that this resistant pattern was transferable. The transfer was not due to bacteriophage nor filterable agent but instead required a cell to cell contact. This resistance is carried by a transfer factor known as plasmids and the resistance factors are called R-factors. While a large number of antimicrobial agents are vulnerable to R-factor transferred resistance of one bacteria to another ,this has not been shown to occur yet with NA. In fact, many bacteria which have a capacity to transfer R-factors are sensitive to NA. It is important to note that NA, in some cases, is able to inhibit the transfer of drug resistance. The clinical relevance of R-factor transfer has not been clearly defined. Another factor affecting the response of organisms to NA is the variation in primary sensitivity. Bacteria isolated from the urinary tract of hospitalized patients tend to be more resistant than those found in a general practice. There are also geographic differences which present themselves. While all this is true, there is a remarkably large body of evidence which is corroborated by this study: that a very high level of sensitivity to NA is found in Gram-negative bacteria which cause urinary tract infections. With this in mind, we find that our result which yielded 85 per cent susceptability to NA, and of that, almost 100 per cent bacteriological and clinical cure following the prescribed regimen of four grams a day, is quite significant.[1, 2]

We found that NA proved to be an effective urinary tract antibacterial giving negative cultures after two weeks of therapy in all cases that demonstrated initial sensitivity and 86 per cent maintained negative cultures two weeks later. We believe that a proper regimen of four grams a day (two caplets of 500 mg four

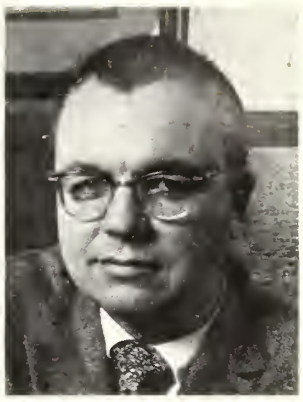
times a day) is a reliable therapy for acute uncomplicated urinary tract infection. We found no significant change in blood chemistry nor any significant side effects. Ten of our original sixty patients were insensitive to NA, yet nine of this ten showed clinical cure. This led us to some thinking and if we may, we shall pose some rhetorical questions here. (1) How sensitive and reliable are our established laboratory tests? (2) Is there in vivo/in vitro correlation? Of noteworthy significance is the fact that seven of our fifty patients had positive urine cultures two weeks after the discontinuation of therapy. Again, we offer no definitive explanation nor do we in any way look to either reinforce or disprove the negative findings of others but rather to simply shed light on the situation. We did not do strain typing. These seven positive cultures could be the same strains as the original; they may be totally different and therefore imply a reinfection that could have been present all along yet was kept inactive by the predominance of primary infecting organism; they could have been sequestered and first made their appearance now; they could be mutations grown from the previous organisms; or, they could simply be a regained sensitivity of the previous infection. In conclusion, we feel that NA is a valuable aid in the therapy of primary acute uncomplicated urinary tract infections.

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President's Pages



The AMA Dues Increase

Recently the American Medical Association Board of Trustees announced that several economy moves were to be instituted in an effort to establish a balanced budget. Among these economy moves was the elimination of advertising in all AMA journals and publications. Dr. James Sammons, the Executive Vice President of the AMA said, "The AMA is frequently and unjustly criticized as being biased toward pharmaceutical companies because we accept drug advertisements. The AMA is scientifically and journalistically independent, and we want that to show. We want to be able to judge our publications entirely on the basis of membership need and service." Also in the economy move was elimination of certain AMA councils and committees as well as a reduction in the AMA staff, particularly the field staff. To offset the loss from advertising, a dues increase of $90 a year to be effective January 1, 1975, was to be proposed for approval by the House of Delegates in December 1974.

No one who has thoroughly examined all of the things the AMA does could deny the benefits of membership. Also, no one can deny that it has been four years since the AMA has raised its dues; and a tremendous amount of inflation has occurred since that time. However, $90 a year is a considerable increase; and I felt that the members of the Association needed to take a careful as well as an informed look at this proposal. For this reason I requested that the AMA field service representative, Mr. Tom Sawyer, meet with your Executive Committee on November 14th, to explain the reason for the proposed actions of the Board of Trustees. I also requested Dr. Hoyt Gardner, a member of the AMA Board of Trustees, to appear before our House of Delegates on Sunday, December 15th, in Charleston, to explain the actions of the Board of Trustees and answer any questions for the satisfaction of the members.

Following considerable discussion at the November meeting of the Executive Committee, I introduced the following resolution, to be submitted for the AMA House of Delegates meeting in December, 1974. 1) The Executive Committee of the Council of the South Carolina Medical Association recommends that advertising be continued in the AMA journals because the pharmaceutical industry is one of medicine's closest friends, and the committee sees no essential conflict in the continuation of advertising in the AMA publications. (Although not part of the resolution, I feel that elimination of advertising should not be done merely as an attempt to silence critics of medicine. It should be done for more valid reasons; and besides, if these critics lose one cause for

protest, they will very easily find another). The South Carolina Medical Association is concerned about the moral aspects of eliminating pharmaceutical advertising in Journals while continuing to solicit pharmaceutical advertising exhibits at the AMA annual meeting. The South Carolina Medical Association recommends that an effort be made to increase advertising rates so that a profit can be realized. 2) The South Carolina Medical Association recommends that the policy of reducing the frequency of publication and size of journals be continued. 3) The South Carolina Medical Association views with alarm the elimination of field services which are the actual contact that most members have with the AMA. Field service representatives are essential for continuation of full membership in the AMA. If this essential area is cut, the AMA will suffer substantial membership losses. The South Carolina Medical Association has always enjoyed very cordial relations and benefited greatly from the cooperation received from the AMA field staff. 4) The SCMA believes that further effort should be made to reduce the home office staff beyond the percentage presently specified. 5) The SCMA believes that there should be some reduction in salary of the headquarters staff personnel. 6) The SCMA believes that a realistic appraisal be made of the salaries and the *per diem* allowances of officers and trustees. 7) The SCMA does not oppose a reasonable dues increase; however, the Association suggests that the amount of dues increase be reconsidered and that a lesser amount might be more acceptable to most members coupled with an increase in advertising rates.

I realize that most of this will probably be history by the time that it is published in the *Journal*. However, I felt that the members should know what efforts their Officers and Council had been making in the interests of all members of the South Carolina Medical Association.

Donald G. Kilgore, Jr., M.D., President
South Carolina Medical Association

The Journal of the South Carolina Medical Association

50 YEARS AGO

December, 1924

A preview of the approaching Annual Meeting to be held in Spartanburg was given. Medical education in the United States was discussed. Dr. N. Bruce Edgerton of Columbia presented a paper on prostatic surgery. Dr. G. F. McF. Mood wrote of rabies.

Editorials

SCHIP

SCHIP, South Carolina Health Information Program, is a pilot project with a laudable goal—to enhance the image of the health industry in South Carolina. This experimental coalition of the various components of the health industry is sponsored by SCRMP for the first year of its life. If the effort proves worthwhile, it is hoped the beneficiaries will take over and continue this public relations program.

Unlike many bureaucratic endeavors, SCHIP is moving forward efficiently. At the initial organizational meeting on the first of October, priorities were set for the first three projects of this program. First priority is publicizing the development of infant intensive care units in South Carolina and their expected impact on lowering our infant mortality, which is third largest in the nation. Second priority is informing the people on the extensive efforts by physicians and hospitals in South Carolina to keep health costs as low as is compatible with quality care. Third priority will be an attempt to popularize and explain health careers to attract more people into these fields.

By the time you read this editorial, the first TV clips on intensive care nurseries should have already been on your TV station. Release of the second subject, health care cost containment, should follow in about a month. This may be a record for bureaucratic action!

Please watch for SCHIP 30-second clips on TV and radio. Let us know your opinion of these. Any criticism or suggestions will be welcome.

EEK

A Disservice to the Profession

Almost every time I have turned on the radio in the past few weeks, I have heard, "Doctor and hospital costs are rising faster than the general economy. Yes, Doctor and hospital costs *are* rising faster than the economy as a whole." Then comes a pitch for Blue Cross-Blue Shield insurance. It is probably true that doctor and hospital costs are rising faster than the general economy (there are some valid reasons for this, but I will not get into that now), but it seems a disservice to the profession to keep driving this into the consciousness of the people—to repeatedly bring this to everyone's attention. Continual emphasis on this point can only increase resentment toward our profession in these days when we all are finding it more and more difficult to stretch our income to cover our necessities. But perhaps Blue Cross- Blue Shield hopes they can sell more insurance this way. It's anything for a dollar nowadays.

EEK

LETTER TO THE EDITOR

Dear Editor:

This is to call your attention to one of my patients who has cerebral palsy and spasticity with paralysis of the right arm and right leg. This is to such an extent that without warning, with spastic motions, the man will be thrown to the ground from an upright position.

It should be noted that this patient has gout and was treated by an internist with Benemid 1 tablet twice a day. He was also given Valium 10 mg. p.o. q.i.d. by his neurologist for anxiety.

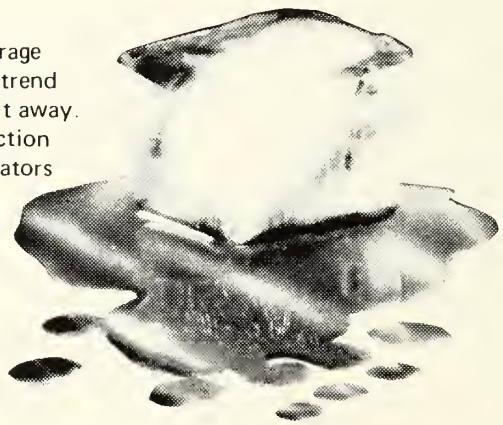
I was the next physician to follow up this patient and I have been treating him consistently since May 7, 1973. The combination of Valium and Benemid has given this man markedly good relief, almost unbelievable, of the spasticity of both the right arm and right leg. This is to the effect that the man now has almost essentially normal use of the right extremities, upper and lower, which he has never before had in his entire life.

I have communicated with Hoffman-LaRoche, Inc. and with Merck, Sharp & Dohme and neither company has a report in their files of this phenomenon occurring previously.

Sincerely yours,
E. W. Camp, M.D.

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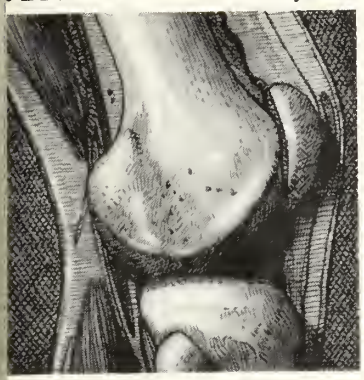
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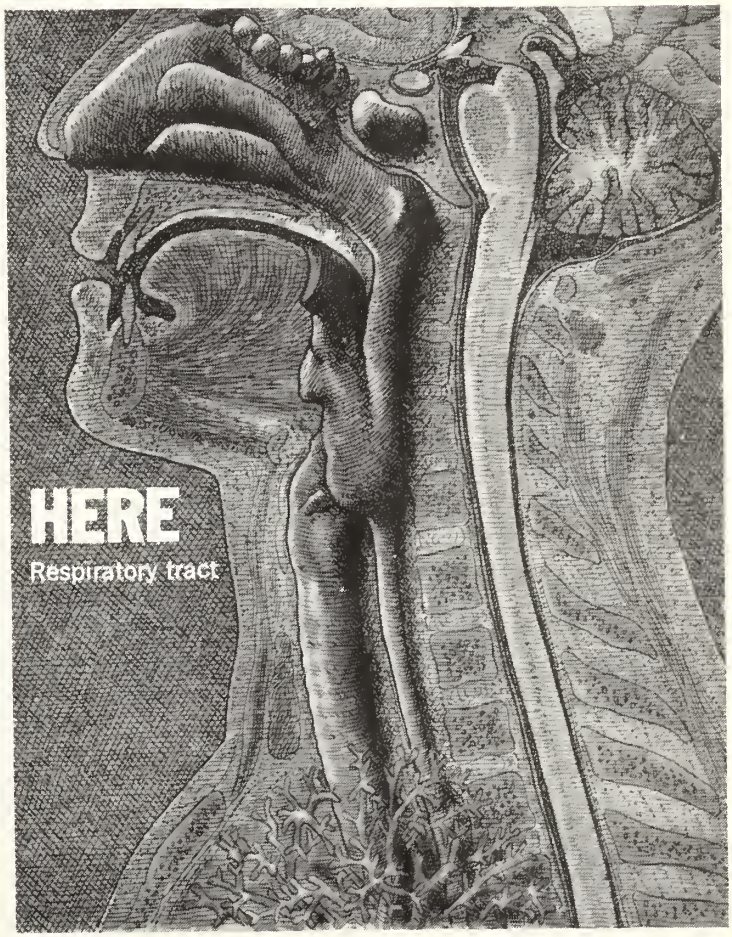


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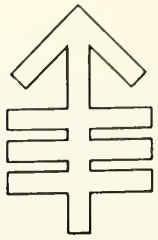
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CANCER TOPICS



PAUL H. O'BRIEN, M.D.*

CARCINOEMBRYONIC ANTIGEN

The term carcinoembryonic antigen (CEA) was first used in 1965 by Gold and Freedman to describe a constituent which they had found in all adenocarcinomas of the human digestive system.[1] This particular constituent was only found normally in embryonic and fetal digestive tissues during the first two trimesters of gestation. The original experiments defining this constituent were confined to adenocarcinoma of the human colon. This was felt to be most appropriate for investigation in that the growth pattern of the cancer was such that usually there was no extension more than six or seven centimeters proximal or distal to the focus of the cancer. Mucous membrane obtained from beyond these margins was therefore available as normal control tissue. With this model, one could hopefully eliminate the complicating problem of transplantation antigens which have so seriously compromised much of cancer immunology. It was felt that such a model would permit distinguishing tumor specific antigens from individual specific antigens.

Anti-tumor sera was prepared in rabbits. The anti-tumor sera was felt to be specific to tumor in that the sera was exposed to excessive volumes of corresponding normal colonic tissue. By this technique of absorption, the anti-sera was felt to be truly tumor specific. Extensive studies were performed to make sure that the tumor specific antibodies in the antisera were not simply antibodies against the bacterial flora of the bowel and/or the fibrin found so frequently in malignant tumors. The study was expanded from cancer of the colon shortly to cancer of the esophagus, cancer of the stomach, cancer of the small bowel, cancer of the pancreas, and cancer of the liver. By similar techniques the same tumor specific constituent was found in the rabbit antisera. Because of the normal presence of this antibody producing substance during the first two trimesters of gestation, the material causing the antibody formation was named the "carcinoembryonic antigen" of the human digestive system.[2]

The carcinoembryonic antigen has been identified as a large, water-soluble protein-polysaccharide with a mole weight of approximately 200,000. Purification has been accomplished by extraction in perchloric acid with further definition by chromatography and electrophoresis.

The initial interpretation of flouresence microscopy indicated the antigen appeared to be on the surface of the colonic epithelial cell. However, further studies utilizing electron microscopy to identify a ferritin anti-CEA conjugate have concluded that CEA is in the glycocalyx of the tumor cell.[3]

A specific humeral anti-carcinoembryonic antigen antibody response has been

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detected in approximately seventy percent of patients with localized digestive system cancer. No function can be attributed to such antibodies and specifically the humoral anti-carcinoembryonic antigen antibodies have no documented advantage to the cancer-bearing host.[4] The presence of detectable serum levels of carcinoembryonic antigen, however, based on an immunoassay which employs standardized preparations of CEA tagged with ^{125}Iodine and heterologous anti-CEA antiserum, defines carcinoembryonic antigen as being where it does not belong, if the proper locus for the carcinoembryonic antigen is in the glycocalyx of the embryo, its release into the blood stream where it can be detected should define inappropriate secretions and inappropriate placed colonic or epithelium of entodermal origin.

At the present time, Hoffman-LaRoche has a test kit which is approved by the FDA for clinical use. It represents one of several alternative methods of measuring carcinoembryonic antigen. The FDA has been rather severe in defining how the Hoffman-LaRoche kit is to be advertised. The Hoffman-LaRoche kit is available in South Carolina. It should not be used as a screen to detect cancer. Proper use of this technique requires serial determinations to define a significant trend. An isolated measurement of CEA should not be used for decision making. A major investigator in the area of carcinoembryonic antigen is Dr. Charles W. Todd. He feels that the carcinoembryonic antigen test is useful in monitoring the treatment of cancer patients in two ways. First, in a patient undergoing surgery, the CEA test results should drop to a normal level. If it does not, this is interpreted as a warning of an unfavorable outcome presumably signalling the presence of established metastasis. If the CEA test drops to normal, there is some reason for an optimistic prognosis but it is important to follow the CEA level regularly, approximately each month. Secondly, if it should rise post surgery, the CEA test precedes an unfavorable outcome.[5]

Conceptually, the use of a tumor specific antigen as a scientific aid in following the cancer patient is very exciting. This technique holds great promise currently as a prognostic procedure in patients with cancer and possibly in the future as a more specific diagnostic screen. The carcinoembryonic antigen can be isolated by various methods. Many of these unfortunately are not available in the commercial market. The carcinoembryonic antigen represents a major aid to the responsible clinician in evaluating how his patient is coping with his previously treated cancer.

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Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)

Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.

Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)

All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.

Tetracyclines are present in milk of lactating women taking tetracyclines.

To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug. The anti-anabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.

Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.

PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.

In venereal disease, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.

Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.

In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).

Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.

Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.

ADVERSE REACTIONS: **Gastrointestinal** (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in the anogenital region.

Skin: maculopapular and erythematous rashes; exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).

Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).

Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.

Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.

Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.

Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands, no abnormalities of thyroid function studies are known to occur.

USUAL DOSAGE: **Adults** – 600 mg daily, divided into two or four equally spaced doses. More severe infections: an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, 'Rondomycin' (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.

For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.

Eaton Agent pneumonia: 900 mg daily for six days.

Children – 3 to 6 mg/lb/day divided into two to four equally spaced doses.

Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.

Concomitant therapy: Antacids containing aluminum, calcium or magnesium impair absorption and are contraindicated. Food and some dairy products also interfere. Give drug one hour before or two hours after meals. Pediatric oral dosage forms should not be given with milk formulas and should be given at least one hour prior to feeding.

In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.

In streptococcal infections, a therapeutic dose should be given for at least 10 days.

SUPPLIED: 'Rondomycin' (methacycline HCl), 150 mg and 300 mg capsules; syrup containing 75 mg/5 cc methacycline HCl.

Before prescribing, consult package circular or latest PDR information.

Rev. 6/73

WALLACE LABORATORIES
CRANBURY, NEW JERSEY 08512



When the focus is on bronchitis due to susceptible strains of *H. influenzae* and pneumococci*

Rondomycin® 300 mg. Capsules

[methacycline HCl]

Delivers from the very first dose:

Studies show that after the first dose serum levels rapidly rise above minimum *in vitro* inhibitory concentrations

*Since many strains are known to be resistant, routine sensitivity testing is recommended.

Opinion & Dialogue

The Role of the Detail Man

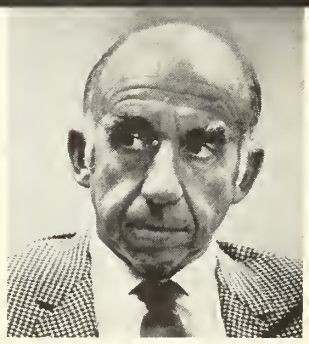


Dr. Willard Gobbell
Family Physician
Encino, California

"I may be prejudiced, but I am very much in favor of the detail men I meet. Most of them are knowledgeable about the drugs they promote and can be a great help in acquainting me with new medication."

Family Physician's Perception

I think that most general practitioners in this area feel as I do about the detail man. Over the years I have gotten to know most of the men who visit me regularly and they in turn have become aware of my particular interests and the nature of my practice. They, therefore, limit their discussion as much as possible to the areas of interest to me. Since I usually see the same representative again in future visits, it is in his best interest to supply me with the most honest, factual, as well as up-to-date inforrnation about his products.



Dr. Jeremiah Stamler
Chairman
Department of Community Health and Preventive Medicine, and Dingman Professor of Cardiology
Northwestern University Medical School

"In the total picture of dealing with health problems in this country, there is a potential for detail men to play a meaningful role."

The Positive Influence

My contact with representatives and salesmen of the pharmaceutical industry is the type of contact that people in a medical center, research people, and academic people have and that's in all likelihood on a somewhat different level from that of the practicing physician.

Let me touch on how I personally perceive the role of the sales representative. These men reach large numbers of health professionals. Thus they could be—and at times actually are—disseminators of useful information. They could consistently serve a real educational function in their ability to discuss their products.

At present they do distribute printed material, brochures and pamphlets—some of it scientifically sound and therefore truly useful—as well as some excellent films produced by the pharmaceutical industry. When they function in this

Is He a Source of Information?

Yes, with certain reservations. The average sales representative has a great fund of information about the drug products he is responsible for. He is usually able to answer most questions fully and intelligently. He can also supply reprints of articles that contain a great deal of information. Here, too, I exercise some caution. I usually accept most of the statements and opinions that I find in the papers and studies which come from the larger teaching facilities. It goes without saying that a physician should also rely on other sources for his information on pharmacology.

Training of Sales Representatives

Ideally, a candidate for the position as a sales representative of a pharmaceutical company should be a graduate pharmacist who has a questioning mind. I don't think this is possible in every case, and so it becomes the responsibility of the pharmaceutical company to train these individuals comprehensively. It is of very great importance that the detail man's knowledge of the product he represents be constantly reviewed as well as updated. This phase of the sales representative's education should be a major responsibility of the medical department of the pharmaceutical company.

I am certain that most of these companies take special care to give their detail men a great deal of information about the products they produce—information about indications, contraindications, side effects and precautions. Yet, although most of the detail men are well informed, some, unfortunately, are not. It might be helpful if sales representatives were reassessed every few years to determine whether or not they are able to fulfill their important function. Incidentally, I feel the same way about periodic assessments of everyone in the health care field, whether they be general practitioners, surgeons or salesmen.

Value of Sampling

I personally am in favor of limited sampling. I do not use sampling in order to perform clinical testing of a drug. I feel that drug testing should rightly be left to the pharmacology researcher and to the large teaching institutions where such testing can be done in a controlled environment.

I do not use samples as a "starter dose" for my patients. I do, however, find samples of drugs to be of value in that they permit me to see what the particular medication looks like. I get to see the various forms of the particular medication at first hand, and if it is in a liquid form I take the time to taste it. In that way I am able to give my patients more complete information about the particular medications that I prescribe for them.

---

capacity they are indeed useful; particularly in the fact that they disseminate broadly based educational material and serve not just as "pushers" of their drugs.

The Other Side of the Coin

Obviously, the pharmaceutical companies are not producing all this material as a labor of love—they are in the business of selling products for profit. In this regard the ambitious and improperly motivated sales representative can exert a negative influence on the practicing physician, both by presenting a one-sided picture of his product, and by encouraging the practitioner to depend too heavily on drugs for his total therapy. In these ways, the salesman has often distorted objective reality and undermined his potential role as an educator.

The Industry Responsibility

Since the detail man must be an information resource as well as a representative of his particular pharmaceutical company, he should be carefully selected and thoroughly trained. That training, perforce, must be an ongoing one. There must be a continuing battle within and with the pharmaceutical industry for high quality not only in the selection and training of its sales representatives, but also in the development of all of its promotional and educational material.

The industry must be ready to accept constructive as well as corrective criticism from experts in the field and consumer spokesmen, and be willing to accept independent peer review. The better educated and prepared the salesman is, the more medically accurate his materials, the better off the pharmaceutical industry, health professionals and the public—*i.e.,* the patients—will be.

Physician Responsibility

The practicing physician is in constant need of up-dated information on therapeutics, including drugs. He should and does make use of drug information and answers to specific questions supplied by the pharmaceutical representative. However, that information must not be his main source of continuing education. The practitioner must keep up with what is current by making use of scientific journals, refresher courses, and information received at scientific meetings.

The practicing physician not only has the right, but has the responsibility to demand that the pharmaceutical company and its representatives supply a high level of valid and useful information. I feel certain that if such a high level is demanded by the physician as well as the public, this demand will be met by an alert and concerned pharmaceutical industry.

From my experience, my impression is that sectors of the pharmaceutical industry are indeed ethical. I challenge the industry as a whole to live up to that word in its finest sense.

Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W.
Washington, D.C. 20005

P·M·A

MUSC POISON CONTROL SERVICE

MARGARET Q. JENKINS, M.D.*
J. LEO BRUEGGEMAN, Pharm.D**

The Medical University of South Carolina has maintained a Poison Control Service since 1958. The treatment facilities of the Service are available to the public through the Charleston County Hospital Emergency Room for acute care, and through the Medical University Hospital for problem cases referred from throughout the state. Information about poisonous substances is available through the Division of Informational Services of the Medical University Hospital, Department of Pharmaceutical Services. Educational programs to increase public awareness of the problem of poisoning are undertaken by various staff members, directed toward students, adults and professionals using a variety of means.

Since it is the informational component of the Poison Control Service that is primarily of interest to physicians throughout the state, only Poison Information will be discussed here.

Housed originally in the Department of Pediatrics, the Poison Information Service was transferred to the Division of Informational Services of the Medical University Hospital, Department of Pharmaceutical Services in 1971. The Division of Informational Services provides literature-based information on therapeutic agents as well as in cases of actual or suspected poisons. Poison information is available through a special phone number (792-4201) seven days a week, twenty-four hours a day to physicians, veterinarians, dentists and hospitals.

The Department of Pharmaceutical Services has a staff of over twenty pharmacists who utilize a back-up call system to provide service for all emergency questions. Pediatric residents and faculty members are available to act as consultants to callers who require information on questions of medical management.

In addition to the routine card files supplied to all State Health Department designated centers, the MUSC Service utilizes a special library of poison treatment information and has on call a number of consultants in the areas of toxicology related to industrial chemicals, plants, animals and substances of abuse. In addition, a computer-based drug literature retrieval service is available to assist in searching the literature for information pertaining to the action, composition, and, especially, the toxicity of a large number of drug and other chemical products.

Incidents of poisoning can be divided into three categories:

I. Commercial products (Eg. medicines and Household products),
II. Plant Substances,
III. Animal toxins (Eg. insects, snakes, spiders)

The Service, thus, requires certain identification information for each category before information on symptoms and treatment can be made available. In considering commercial products, all too often the caller knows only the intended use of a product and can only give a physical description of the product. Information on many possible ingredients must be reviewed; and, possible symptoms and associated treatment must be kept in mind as the victim is observed for possible toxic responses. In order to provide adequate information, the Service must have:

1. The brand name and the name of the manufacturer,
2. The type of product (the physical form and the use for which it is in-

*Department of Pediatrics
**Department of Pharmacy
Medical University of South Carolina
80 Barre Street
Charleston, S. C. 29401
Requests for reprints and correspondence should be directed to Dr. Brueggeman.

tended),

3. Ingredients as listed on the container (The label is more accurate than any file Service.)
4. Treatment information from the label and information as to what treatment the patient has already received,
5. The amount ingested or to which the victim was exposed,
6. The symptoms being demonstrated and the time elapsed since the onset of the accident.

Much the same information is required when plant substances present as the primary toxic agent. The Service can provide the most adequate and prompt information when the proper botanical name is available. The Service can often utilize common plant names; however, additional time may be required. When only a description is available, much additional time may be required; and, often this time is of no avail. When possible, local plant experts should be requested to provide at least identifying information. If transportation facilities are readily available, as much of the plant as is possible may be sent to the Service for identification by one of its consultants.

When an animal toxin is suspected, the Service functions best when the animal is well identified.

Much of the information required of the caller by the Service is used to compile general statistics. One requirement is that the name, location and phone number of the caller as well as the victim's name, age and sex also be made available. This requirement will greatly facilitate the transfer of information if a review of the Service's records indicates that more information is available. If the urgency of the situation clearly requires the dispensing with the collecting of certain information, no inordinate demands will be made.

From the records of the Service for nearly 700 calls received in 1973 the following general information was gathered:

Many calls (over 36%) are received from 5 p.m. until midnight and, in over half the calls, pertain to victims under the age of 5. Interestingly, where the information on the victims' sex is available the calls were equally distributed between male and female victims. Two percent of the calls were made by veterinarians. (One physician called about an "infant" who was exposed to a liquid fertilizer and developed convulsions. Treatment information was provided; and, later it was learned that the patient was an infant opossum. Information is provided on all calls received by the Service.)

The largest category of poisonous agents for which information was requested in 1973 was prescription drugs (28%) followed by household products (17%). Information on illicit drugs was requested by less than 1 per cent on all callers.

Unfortunately, the Service was not able to provide comprehensive information for 4.5 per cent of the calls, usually because the specific ingredients in a product could not be learned either because the product's name and manufacturer was unknown through improper storage or because the information was not made available to the National Clearinghouse and the manufacturer could not be contacted.

Future plans of the Service depend on an assessment of the needs of the state medical community for this service. In the near future, the Service plans to conduct a survey that will measure:

1. The incidence of poisonings as a problem of medical management,
2. The incidence of the requirement of of information from the MUSC Poison Information service in instances of poisonings,
3. The usefulness of information provided by the Service,
4. The incidence of unforseen complications when recommended treatment and management are employed.

Suggestions and criticisms from physicians in South Carolina are invited to guide the expansion of this service.

The Upper Functional G.I. Disorder

The Pseudo-ulcer

Ulcer-like symptoms: no G.I. pathology



X-ray demonstrates normal stomach.

The patient is convinced he has an ulcer. However, symptoms are not quite typical, and x-ray findings are negative. These findings and the results of additional diagnostic procedures exclude an organic basis for the patient's complaints. A diagnosis of "upper functional gastrointestinal disorder" is made, which is supported by the fact that episodes of painful symptoms coincide with episodes of excessive anxiety, as indicated by the history.

It may be useful to explain to the patient the mechanism by which emotions upset normal G.I. functioning, resulting in hypersecretion and hypermotility and thus causing such symptoms as nausea and epigastric pain. In upper functional gastrointestinal disorders, counseling by the primary physician can often help the patient understand how excessive anxiety may cause flare-ups of G.I. symptoms.

A disproportionate number of patients seen by the general practitioner suffer from functional disorders, as do more than half of those seen by the gastroenterologist.* Where milder cases may respond to counseling alone, if symptoms are severe and disabling to any degree, a suitable regimen may include medication to reduce the symptoms and the excessive anxiety that often provokes these distressing symptoms.

In these cases, Librax as an adjunct can greatly contribute to the course of therapy. Its dual action can offer relief of both painful symptoms and excessive anxiety, because each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br. The antianxiety action of Librium® (chlordiazepoxide HCl) makes Librax exceptional among drugs for certain gastrointestinal disorders associated with excessive anxiety; the clidinium bromide (Quarzan™) component furnishes dependable antisecretory-antispasmodic action. Dosage is flexible; it may be adjusted according to your patient's requirements within the range of 1 or 2 capsules three or four times daily, up to 8 capsules daily in divided doses. Please consult the complete product information regarding precautions and adverse reactions.

*Rome HP, Brannick TL: Orientation and mechanism of functional disorders; clinicophysiologic correlation, chap. 133, in *Gastroenterology*, edited by Bockus HL. Philadelphia, W.B. Saunders Company, 1965, p. 1116.

An adjunct in anxiety-related upper functional G.I. disorders

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

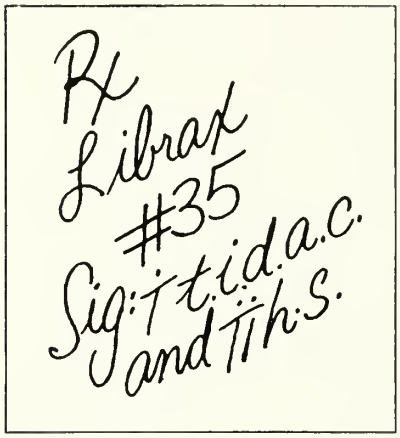
ROCHE

Please see summary of product information on following page.

An adjunct in anxiety-related upper functional G.I. disorders

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.



Initial therapy

The initial prescription allows evaluation of patient response to therapy.



Follow-up therapy

Follow-up therapy with a prescription for 2 to 3 weeks' medication usually helps maintain patient gains.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Symptomatic relief of hypersecretion, hypermotility and anxiety and tension states associated with organic or functional gastrointestinal disorders; and as adjunctive therapy in the management of peptic ulcer, gastritis, duodenitis, irritable bowel syndrome, spastic colitis, and mild ulcerative colitis.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido —all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

Dosage: Individualize for maximum beneficial effects. Usual maintenance dose is 1 or 2 capsules, 3 or 4 times a day, before meals and at bedtime. Geriatric patients—see Precautions.

How Supplied: Librax® Capsules, each containing 5 mg chlordiazepoxide hydrochloride (Librium®) and 2.5 mg clidinium bromide (Quarzan™)—bottles of 100 and 500.

ROCHE

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Nutley, New Jersey 07110

New Law to Raise Many Navy Physician Salaries

The recently passed Variable Incentive Pay bill paved the way for qualified physicians in military service to earn special pay of up to $13,500 per year. The aim of the new pay bill is to reduce discrepancies between what civilian and military physicians can ordinarily earn. Increments awarded under the bill, added to base pay and fringe payments, may often produce annual incomes that compare favorably with that of many civilian doctors—incomes in the $30,000 to $40,000 range.

The salary of a physician entering the Navy depends on his rank, determined by individual training and professional experience. Credit for promotion and longevity is awarded for time spent in medical or osteopathic school. With the additional impetus of the new bonus bill, the Navy feels it can offer physicians an extremely attractive package of pay and benefits.

A special toll-free number has been set up for physicians seeking further information on the Navy Medical Corps: (800) 841-8000, or you may call Chief Brago or Smith at (803) 765-5991; or write Navy Opportunity Information Center, P. O. Box 2000, Pelham Manor NY 10803.

MEDICAL UNIVERSITY OF SOUTH CAROLINA
SESQUICENTENNIAL DEPARTMENTAL SEMINARS
OF THE COLLEGE OF MEDICINE

January 6-7, 1975	Anatomy — Dr. Charles P. Leblond of McGill University, Montreal, guest speaker.
January 16-17	Physical Medicine and Rehabilitation — Dr. John V. Basmajian of Emory University, guest speaker.
January 23-24	Laboratory Medicine (formerly Clinical Pathology) — Dr. J. Roger Edson of the University of Minnesota and Mayo Graduate School of Medicine, guest speaker.

Please notify the appropriate department if you expect to attend. Medical University of South Carolina, 80 Barre St., Charleston, S. C. 29401.



SOUTH CAROLINA REGIONAL MEDICAL PROGRAM

VINCE MOSELEY, M.D.
Coordinator, South Carolina

SCRMP FUNDS 10 PROJECTS TO DETECT HIGH BLOOD PRESSURE IN S. C.

The South Carolina Regional Medical Program has awarded funds totaling $579,803 to ten health service agencies to develop and carry out blood pressure screening, medical referral and follow-up programs for South Carolinians.

Based on the 1970 census and national morbidity statistics, the suspected/estimated incidence of high blood pressure in South Carolina includes one in every ten whites and one in every five blacks, or a total of 350,000 persons, many of them unaware of it.

The prevalence of the disease is of great concern to health authorities everywhere since it can lead to stroke, heart failure, coronary-artery disease, and kidney failure and is, therefore, the largest contributing cause of death.

Dr. Vince Moseley, coordinator for the SCRMP and director of the Division of Continuing Education at the Medical University of S. C., said the objective of the SCRMP supported programs is to motivate all adults to have their blood pressure checked annually and to provide those found to be hypertensive with guidance as to where to obtain proper treatment and encourage their continued medical supervision.

He said the projects, which are funded by SCRMP through June 30, 1975, are designed to make newer knowledge of anti-hypertensive drug management available to physicians and provide a major expansion of personnel and training to pave the way for the eventual goal of a comprehensive statewide program.

Dr. Moseley stated the crux of the problem is the fact that high blood pressure by itself causes no symptoms at all until there are complications. That is why it is of great importance that every person get a blood pressure check at least annually. Once detected, it can usually be controlled simply by taking pills regularly.

A statewide organization involved in the campaign is the S. C. Heart Association. This year the SCRMP is providing $55,000 to the organization for Project No. 76 entitled Community Hypertension Control, under the direction of Helen Stuart. During the year, the Heart Association, with support from SCRMP and other agencies, is slated to carry out the following activities:

—Conduct screening activities in all 46 counties of the state.

—Inform all physicians in the clinical practice of medicine on the treatment of hypertension as well as available resources.

—Organize a program of low cost anti-hypertension medication with models to make available in controlled form, medication needed by many indigent citizens currently unable to follow physicians' prescriptions.

—Form speakers bureau of volunteers to follow through on public education.

—Continue coordination necessary among the agencies, groups and personnel necessary for a self-perpetuating program after SCRMP and other agency funding stops.

To augment and provide further local support for the Heart Association activities, SCRMP is currently funding nine other hypertension projects which include (shown are title, sponsor, location, name of project director, brief description and funding allocation):

(60-B) SCREENING PROGRAM FOR HYPERTENSION IN CHILDREN — Medical University of S. C., Charleston, Dr. Arno Hohn, would extend screening evaluation to hospital and clinic settings in major medical centers in S. C. where pediatric problems of asthma and cystic fibrosis are found, ($60,000).

(68) RURAL HEALTH EXTENSION PROGRAM — Williamsburg County Memorial Hospital, Kingstree, Dr. John Connolly, expanding services (including hypertension screening) provided by existing physicians, nurses and other allied health personnel in rural areas of Williamsburg County, ($125,000).

(78) SCREENING FOR UROPATHIES AND HYPERTENSION IN CHILDREN — Medical University of S. C., Charleston, Dr. Charles P. Darby, effort to detect and control urinary tract infection which affects young girls and can cause serious disease, renal failure and hypertension, if untreated, ($50,000).

(82) HYPERTENSION STUDY OF BLACK MALES — Medical University of S. C., Charleston, Dr. S. H. Sandifer, follow-up to initial study conducted in 1960 of a random population group in Charleston area, ($87,250).

(83) DEMONSTRATION HYPERTENSION CONTROL PROGRAM — State Dept. of Health & Environmental Control, Dr. William C. Marett, staff and implement pilot detection centers and develop hypertension control program, ($60,000).

(115) BEAUFORT-JASPER HYPERTENSION SERVICES — Beaufort-Jasper Comprehensive Health Services, Beaufort, Thomas C. Barnwell, Jr., to screen the resident population in Beaufort and Jasper counties for hypertension and provide follow-up medical care, ($26,776).

(116) LOWCOUNTRY RURAL HEALTH CARE — Lowcountry Health District, Beaufort, Dr. Foster C. McCaleb, to provide an itinerant clinical team to conduct medical outreach, screening and referral, and limited treatment for rural population initially in Colleton County and later in Hampton County, ($35,391).

(120) CATAWBA HYPERTENSION DIABETES PROGRAM — Lancaster County Health Dept., Lancaster, Dr. Helen E. Llewelyn, to establish a community-based program for screening, referral, treatment and education for hypertension and diabetes, ($25,000).

(125) TRIDENT MOBILE HEALTH CLINIC — Berkeley/Dorchester Counties Economic Development Corp., Moncks Corner, and the Committee on Better Racial Assurance Health Project, Charleston, Virginia Anderson, R.N., and Mrs. Alberta Cook, to provide simple health care, case finding activities, screening, health education and referral services in the outlying rural areas of Berkeley, Dorchester, and Charleston counties, ($55,386).

Funding by SCRMP for some of these projects continued from last year, others started July 1, 1974 and some started September 1, 1974.

According to reports from the projects, several thousand persons have been screened. Results indicate that South Carolinians have high levels of hypertension, sometimes exceeding national morbidity statistics.

—For example, the Program for Hypertension in Children screened 1,100 4th grade children with 20 positive findings during one three-month period.

—During the period Jan. — June, 1974, the Rural Health Project in Williamsburg County recorded 1,531 patient visits that involved 828 patients with elevated blood pressure.

—The Heart Association reported 15,000 persons were screened at 20 locations in 18 counties during the first six months of 1974.

—The project involving screening of young girls to detect and control urinary tract infection, which can cause, hypertension, if untreated,

saw 1,010 children in Charleston county.

—The Hypertension Study of Black Males in Charleston County reports with all the data and calculations that have been made, the lives of 153 black males in Charleston County might be saved from cardiovascular disease each year if blood pressure levels could be brought to normal levels.

—Opening of two pilot detection centers in Clarendon and Lee counties by the Demonstration Hypertension Control Project resulted in the screening of 2,219 persons during the first six months of 1974. Other centers are to be established in Sumter and Kershaw counties.

—The Beaufort-Jasper Comprehensive Health Services is underway to screen 10,000 persons in the two-county area.

—The Lowcountry Rural Health Care project will operate in four counties with a multiphasic screening effort involving 50 persons per day.

—The Catawba Hypertension-Diabetes Program is screening 150 persons weekly while the Trident Mobile Health Clinic plans to screen up to 900 persons monthly.

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